THE RUBBER AGE

MARCH 10, 1921 VOL. VIII. NO. 11

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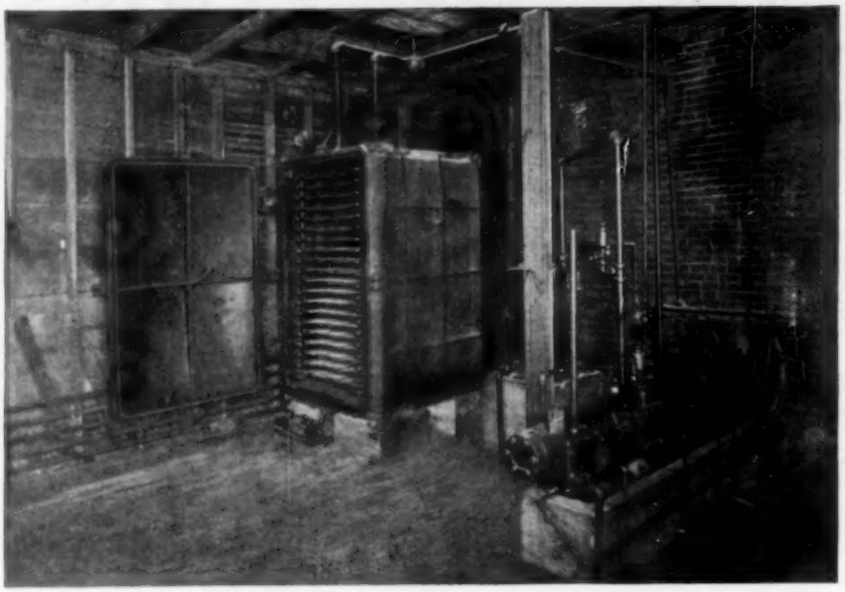

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THE RUBBER AGE

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Rubber Heels and Their Manufacture

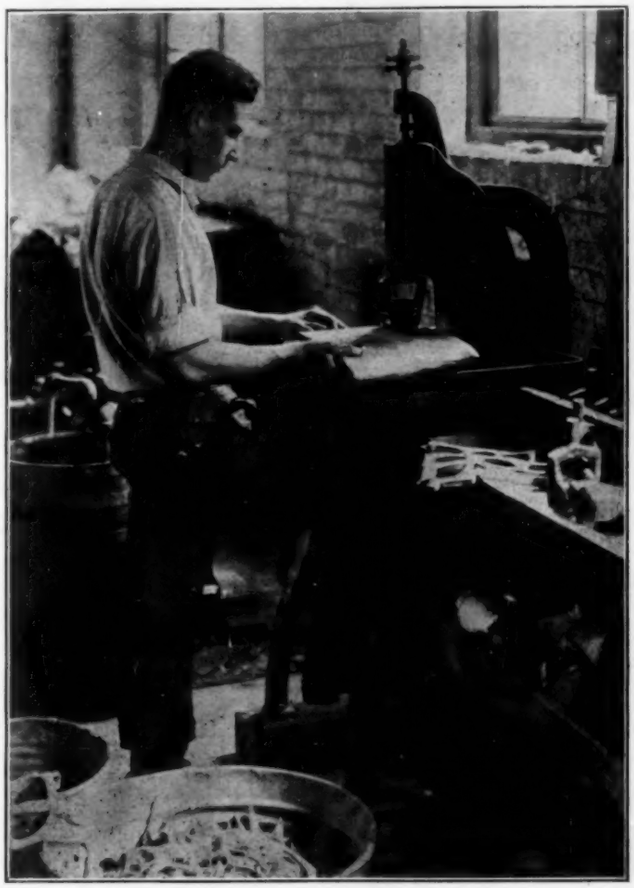
By Walther H. Grote

Factory Manager, The American Rubber Company of Chicago

Rubber heels—ten years ago practically unknown—are manufactured continually in such growing volumes that they may be justly classed as one of the most popular molded rubber articles. Broad advertising campaigns combined with recommendations by the medical profession have done much toward establishing a steady consumption of rubber heels by all classes of people, and while formerly regarded an article of luxury they are today held a necessity by the great majority of the public. Considering the superiority of rubber heels their universal acceptance and ever increasing demand is easily comprehended.

Rubber heels make possible an elastic, noiseless walk and are therefore adapted for all places where quiet is especially desired, such as hospitals, offices, libraries, hotels, etc. The rubber heel also adheres to smooth surfaces and therefore prevents the slipping on wet pavements, ice or snow. Besides a good rubber heel possesses better wearing qualities than a leather heel and yet is only negligibly more expensive.

It must be explicitly emphasized that only heels made of a properly proportioned rubber compound are characterized with these superior properties. In this direction unfortunately a good deal is sinned. The buyer demands a rock bottom price heel and in order to meet the competition the manufacturer produces besides his quality article also an inferior grade, which, of course, cannot do justice to the expectation of the ultimate consumer. Unfortunately, such trash has a tendency to belittle the good reputation of rubber heels in general. Every dealer handling the inferior grade should, therefore, enlighten his customers and explain that a good heel must necessarily cost money and that the cheapest heel is the more expensive in the long run, since, essentially the same general manufacturing costs apply to both grades.



CUTTING OUT RUBBER HEELS WITH DIES

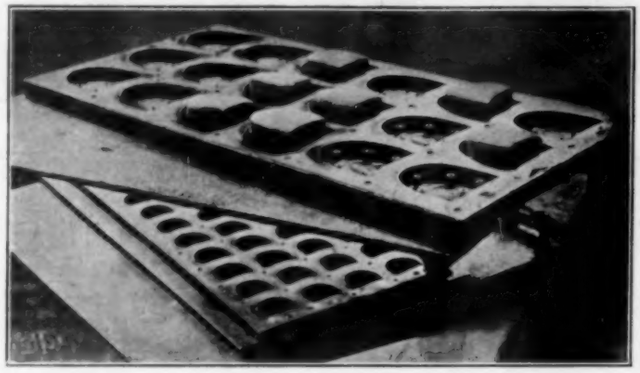
The manufacture of rubber heels is generally the same as that of other molded rubber goods. The well aged rubber-mix is sheeted out in such thickness that with an appropriate die sufficient stock may be stamped out for the heel. Each size heel is accordingly stamped with a corresponding die. The stamping of the green heels may be done by machine, in which instance a series of dies are used at the same time, or if the production does not warrant this, it may be done by hand. The surface of the cutting table is covered with a suitable rubber—or rubberized fabric pad to save the edge of the cutting tool and to prevent the mix from taking up loose particles from the table surface. Wood and lead surfaces are not popular for such reasons.

In order to reduce the material cost the heel may be composed of two differently priced stocks, since its upper part is not subjected to the wear and tear of the "heel-tread". In this case, however, it is essential that a good combination and even cure of the two stocks is effected, as otherwise, splitting of the two layers will result in the finished product.

The raw heels are inserted into molds, which consist of either two or three pieces, design plate, form plate and cover. Molds producing heels with raised lettering or anti-skid designs have the design engraved into the plate, those with depressed designs have them accordingly affixed as positive matrix thereon. In place of the necessary holes for nails or screws, steel pins of corresponding shape are screwed in. Design and form plates are provided with guide pins so that the heel form registers with the design of the lower plate. The gauge of the form plate corresponds with the thickness of the heel. If the heel is of the cupped-in design the cover plate is accordingly provided with necessary protrusions and guide pin holes, otherwise a polished sheet metal plate serves as a cover.

Previous to filling, the hot molds are brushed with a solution of soap, soap-tree bark, or sodium thiosulphate, etc., to facilitate the removal of the heels after vulcanization. In order to prevent the tearing through of the screws or nails small perforated metal or composition disks, which offer the necessary resistance are vulcanized into the rubber heels.

The vulcanization of rubber heels is effected in platen presses of standard construction, one mold being inserted into each space between the platens. The time and temperature of vulcanization depends upon the compounding of the mix. It is important that the platens are accurately parallel so that an equal pressure is effected upon the molds at all times. It is further essential to provide a steady outlet for the condensation water in order to maintain an even steam pressure throughout the press. This is usually done automatically by means of a specially designed controller and exhaust chamber.



Rubber Heel Molds

After the vulcanized heels are removed from the molds the overflow, which correctly should amount to about seven per cent of the weight of the heel, is neatly trimmed off with bent shears or with an overflow trimmer and the heels are then packed in cartons.

A great number of heel patents have been issued regarding special constructions, designs and novel features, the discussion of which here, however, would lead too far. Rather shall we mention some of the manufacturing troubles and their remedies.

Hydraulic Platen Press Used in Curing Heels

Frequently it happens that heels are not fully pressed out and show light places, that corners are missing, parts of the lettering are not pronounced or that the counter sunk depressions for the nail heads appear torn. The cause of this may either be insufficient stock or unequal pressure between uneven platens. If the full hydraulic pressure is applied too soon, i.e., before the compound has softened enough to fill out the entire cavity, trapped air will cause hollow places (air checks) in the heel. Inadequate pressure during vulcanization causes heavy overflow with imperfect shape. Moist stock will cause light places through evaporation of the water. To prevent these troubles it is necessary to fill the molds with the correct quantity of dry stock and to gradually increase the pressure to the required degree, where it must be maintained evenly for the duration of the cure.

Soft heels, which yield permanently to a pressure of the finger nail are undervulcanized. The cause may be either condensation water in the press platens or a faulty compound.

An overcure of the heels is recognizable by the odor and the easy breaking off of small pieces with the finger nail.

It also happens that during use the heels will separate into two layers and split off. This is especially the case when the heels have been made from two qualities of stocks. This fault may be occasioned by the use of old stock, moisture, dust, uncleanliness or perspiration spots between the surfaces or by unsuitable mixtures which do not combine well or by insufficient pressure.

Unsightly, rough and spotted heels originate from inadequate preparation of the molds. The heels stick in the molds and must be pried loose. As a remedy the molds should be kept clean and a suitable moldwash employed.

If the molds are not properly cleaned improper molding of the designs and lettering will be the result.

The sulphur contents of the mix and vulcanization time must be correctly determined in order to avoid the "blooming" of the finished product.

Finally the colors of the heels must be properly shaded so as to effectively match the various shades of the shoes which are to be found on the market.

Very frequently after the heels are trimmed they are sorted into sizes and thrown into stock bins where they are kept in storage until needed. Eventually for the retail trade they are placed in small cardboard cartons, each holding a pair of heels, and are sent to their respective destinations.

British Foreign Trade in Rubber

A recent bulletin of the Bureau of Foreign and Domestic Commerce relative to the British foreign trade in rubber stated that little change had been noted in the volume of value of the foreign movement of crude rubber into or out of the United Kingdom during 1920. Imports, it stated, were 8.8 per cent greater in quantity and 1.4 per cent greater in value than in 1919 while reexports were 8.9 per cent less in quantity and 0.8 per cent less in value. The apparent consumption of crude rubber in the United Kingdom in 1920 was 1,276,142 centals (of 100 pounds), against 955,838 centals in 1919.

In manufactures of rubber, however, an important revival of trade is to be noted, imports rising in value by 136.6 per cent over 1919, exports by 57.1 per cent, and reexports by 194.8 per cent. Tires and tubes are the chief items and accounted for most of the gain under all three headings; but manufactures other than tires and rubber footwear also showed a most encouraging gain under exports, though details as to just what articles were included are not given in the official returns now available.

According to statistics which accompanied the article the value of imports of unmanufactured rubber, including crude rubber, gutta-percha, balata, reclaimed and waste and rubber substitutes amounted to £26,768,813 for 1920, while total imports of rubber manufactures amounted to £7,102,510. Total exports of unmanufactured rubber for the year amounted to £521,109 in value with total exports of manufactured goods at £11,549,243. Total reexports of unmanufactured rubber were £14,097,655 while reexports of rubber manufactures totalled £559,537. Averaged for the entire year the value per pound of the crude rubber imported into Great Britain was 2 s., against 2 s. 2 d. for 1919.

Reactions of Accelerators During Vulcanization

By Winfield Scott and C. W. Bedford

Goodyear Tire and Rubber Co., Akron, Ohio and Quaker City Rubber Co., Philadelphia, Pa.

The investigation of organic accelerators, as shown by the literature of the past five or six years, appears to be confined largely to a search for new compounds or a combination of compounds to catalyze the addition of sulfur to rubber. It has been shown that these accelerators are almost entirely organic nitrogen compounds, and as a result nearly all classes of nitrogen-containing substances have been tried. Furthermore, it has been shown that the nitrogen of such compounds is basic or becomes basic during vulcanization by the action of heat, sulfur, or hydrogen sulfide.

It has been previously proposed that a sulfur reaction of the accelerator is necessary, and certain reaction products in some way make sulfur available or vulcanization. In some cases a sulfur reaction is doubtless necessary to form the true accelerator, which is a polysulfie.

Ostromuislenski[2] attributes the activation of sulfur by aliphatic amines to the formation of thiozonides of the type R-NH-S-S-S-NHR, which readily give up their sulphur to the rubber. The formation of thiozonides is illustrated by the following equation:

$$2R\text{-}NH_2 + 4S \longrightarrow R\text{-}NH\text{-}S\text{-}S\text{-}S\text{-}NH\text{-}R + H_2S$$

By this scheme, the true accelerator is produced together with hydrogen sulfide by the reaction of the amine and sulfur. Such an explanation necessarily excludes the tertiary amines, since they have no hydrogen attached to the nitrogen, and it is also limited to those amines that react with sulphur at curing temperatures. In the formation of thiozonides, hydrogen sulfide is a by-product and does not function directly in producing a true accelerator.

Dubosc Illustrates Reactions

Andre Dubosc[3] states that a part of the curing action of accelerators is due to the polymerizing effect of thiocyanic acid produced by a sulfur reaction on the accelerator. He illustrates these reactions by means of equations, but makes no statement that such reaction products were determined experimentally. As an example of these reactions, it is stated that aniline reacts with sulfur at 140°, in this manner.

$$C_6H_5NH_2 + 4S \longrightarrow HCNS + 2HC{\equiv}CH + CS_2 + H^2S$$

The writers have been unable to duplicate these results, and no reference to any such reaction could be found in the literature on the subject. Dubosc attributes the activation of sulfur entirely to the reaction between hydrogen sulfide and sulfur dioxide. It is known that vulcanization takes place if these two gases are allowed to react in the presence of rubber. Since the publication of the above-mentioned article by Dubosc, a patent[4] has been granted to S. J. Peachey, covering the process. While there are accelerators, such as *p*-nitrosodimethylaniline, which generate both hydrogen sulfide and sulfur dioxide during the cure, certainly the great majority of accelerators do not activate sulfur in this way, since they function in rubber stocks that are practically oxygen-free.

The latest theory for the action of accelerators during vulcanization is that of Kratz, Flower and Coolidge[5]. These writers attribute the accelerating action of amines, such as aniline, to the formation of an unstable addition product of aniline and sulfur, in which the sulfur is temporarily attached to the nitrogen, making it pentavalent:

$$C_6H_5NH_2 + S \longrightarrow C_6H_5N\begin{matrix}\diagup\!\!\diagup S\\ \diagdown\ H_2\end{matrix}$$

The compound thus formed gives up its sulfur to the rubber and is then regenerated by a further reaction with sulfur.

The writers believe that the mechanism of the action of amines is represented differently from that given by the above investigators, and that hydrogen sulfide is one of the important factors in acceleration. It is believed that, in general, amines catalyze the addition of sulfur to rubber in the following manner:

$$RNH_2 + H_2S \longrightarrow \begin{matrix}H\\ |\\ RNH_2\\ |\\ SH\end{matrix}$$

$$\begin{matrix}H\\ |\\ RNH_2\\ |\\ SH\end{matrix} + xS \longrightarrow \begin{matrix}H\\ |\\ RNH_2\\ |\\ SH\\ ||\\ S_x\end{matrix}$$

As a specific example, dimethylamine, with hydrogen sulfide and sulfur, forms a derivative of ammonium polysulfide as follows:

$$(CH_3)_2NH + H_2S \longrightarrow (CH_3)_2NH_2SH$$

$$(CH_3)_2NH_2SH + xS \longrightarrow \begin{matrix}(CH_3)_2NH_2SH\\ ||\\ S_x\end{matrix}$$

Polysulfide compounds similar to the above are considered to be the true accelerators that furnish the sulfur necessary for vulcanization. That this type of sulfur is available for vulcanization has been shown by Ignaz Block[6], who states that hydrogen polysulfides (H_2S_2 and H_2S_3) will cure rubber at ordinary temperatures. C. O. Weber[7] quotes Gerard and his work showing that alkali polysulfides in concentrated solution will also vulcanize rubber.

Organic Accelerators

All organic accelerators do not function in the same manner as the bases, and for this reason the writers choose to divide accelerators into two clases.

I. *Hydrogen Sulfide Polysulfide Accelerators*—In this class belong those bases which form polysulfides similar to yellow ammonium sulfide.

II. *Carbo-sulfhydryl Polysulfide Accelerators*—This includes all accelerators that contain the grouping ≡C-SH, such as the thioureas, dithiocarhamates, thiurams, mercaptans or the disulfides which may be formed from them by oxidation or by reaction with sulfur.

To the first class belong all basic organic accelerators or such compounds as produce basic accelerators under curing conditions. Certain inorganic accelerators may also be included. These will be discussed later in the paper.

The second class also includes certain of the Schiff bases[8] which form thiourea derivatives by a sulfur reaction during the cure. Further discussion of this class will be reserved for a later paper.

The phenylated guanidines belong to both classes, since at curing temperatures they easily react with hydrogen sulfide to form thioureas and free amines. Diphenylguanidine, for example, gives thiocarbanilide and ammonia.

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[1] Presented before the Rubber Division at the 60th Meeting of the American Chemical Society, Chicago, Ill., September 6 to 10, 1920.
[2] Chem. Abs., 10 (1916), 1944.
[3] India Rubber World, 39 (1919), 5.
[4] Brit. Patent 129,826.
[5] Jour. Ind. & Eng. Chem., 12 (1920), 317.
[6] D. R. P. 219,525.
[7] "Chemistry of India Rubber," p. 47.
[8] Bedford and Scott, This Journal, 12 (1920), 31.

The difference in behavior of the two above-mentioned classes of accelerators was well illustrated by the following experiment: A rubber cement containing rubber, sulfur, and zinc oxide was divided into two portions. To the first portion was added piperidyl ammonium polysulfide; there was no apparent change after standing for 2 mo. To the second portion was added an amount of piperidine equivalent to that which was used in the first sample, and a small amount of carbon disulfide was stirred into the mixture. This cement jelled in less than 24 hrs., showing the well-known higher curing power of the dithiocarbamates as compared with basic amines and imines.

The present paper will deal with the first-mentioned class of accelerators, *i. e.*, with those accelerators which, in the presence of hydrogen sulfide under curing conditions, form polysulfides analogous to those of sodium and ammonium.

The structural relationships of the polysulfides of the nitrogen bases and the more positive metals are not clearly understood at present, although it is known that some of the sulfur is held in a more or less loose form of chemical combination. This is evidenced by the precipitation of sulfur from concentrated solutions on dilution, and the generation of heat when sulphur dissolves in sulfide or hydrosulfide solutions. It is certain that the sulphur of polysulfides is quite different form rhombic or α-sulphur, and that the aggregate S_8 is changed to the sulphur of polysulfides by the combined action of hydrogen sulfide and basic accelerators.

It is a well-known fact that sulfur will react with rubber resins and proteins at temperatures near 140° with the formation of hydrogen sulfide. This hydrogen siulfide in the presence of basic accelerators forms hydrosulfides which in turn take up sulfur to form polysulfides. The polysulfides pass on part of their sulfur to the rubber and constitute the true curing agents. Such a mechanism applies also to the curing action of alkali and alkaline-earth hydroxides. The fact that basic magnesium carbonate will react with hydrogen sulfide and sulphur in water suspension to form polysulfide solutions no doubt accounts for its mild accelerating power. Lime and magnesia do not function well in deresinated rubbers where much of the hydrogen sulfide producing materials have been removed. The sulfides and polysulfides of the alkali and alkaline-earth metals should function in deresinated or synthetic rubbers.

The Bayer Company Patent

The Bayer Company patent[1] on basic organic accelerators contains a broad claim covering all bases with a dissociation constant greater than 1×10^{-5}. This claim covers those bases which readily react with hydrogen sulfide and sulfur to form polysulfides at ordinary or at curing temperatures. Weak bases such as aniline cannot be expected to form polysulfides to the same extent as strong bases like dimethylamine, since the formation of polysulfides is in some way dependent upon basicity. It has been found that weak bases such as aniline, *p*-toluidine, and quinoline, dissolve more sulfur at 100° in the presence of hydrogen sulfide than when it is absent. Aniline will dissolve about 1 per cent more sulfur at 100° and about 4 per cent more at 130.°

The relative accelerating power of the organic bases is dependent upon the facility with which they form polysulfides and the extent to which they are able to activate sulfur and make it available for the rubber. This will, in some measure, be dependent upon the basicity. In a previous paper by the writers it was stated at least a part of the accelerating action of hexamethylenetetramine is due to the fact that during the cure there are produced, among other products, ammonia and carbon disulfide which, alone or with basic products present in the rubber, form dithiocarbamates. It may be added that "Hexa" also forms hydrogen sulfide by sulfur reaction, which with the ammonia undoubtedly forms ammonium polysulfides. This accelerator may, therefore, be classed under both types since it is both a hydrogen sulfide and a carbo-sulfhydryl polysulfide accelerator.

Aldehyde ammonia, by the action of heat alone, forms ammonia, while with sulfur it also gives hydrogen sulfide. Heat also produces other bases such as the alkyl pyridines or collidines. This material appears to be solely a hydrogen sulfide polysulfide accelerator. The ammonia condensation products of other aliphatic aldehydes behave in a similar manner.

[1] U. S. Patent 1,149,580.

p-Phenylenediamine is an accelerator that is much more active than would be assumed from its basicity. At curing temperatures, this accelerator reacts with sulfur to form large amounts of ammonia and hydrogen sulfide together with certain weaker bases. If the reaction be carried out under a cold reflux, the condenser will frequently become clogged with the white solid compounds of ammonia and hydrogen sulfide which are described by Roscoe and Schorlemmer. The action of *p*-phenylenediamine in the cure is entirely that of a hydrogen sulfide polysulfide accelerator.

The three above-mentioned accelerators are not dependent on the rubber resins or proteins for their supply of hydrogen sulfide, since this is one of their sulfur reaction products. It is to be expected that these accelerators will function in a deresinated or a synthetic rubber, and the Bayer patents state that this is true. It is also known that piperidine will cure in a nitrogen-free rubber. Here we have a strong base acting apparently without the aid of hydrogen sulfide. Piperidine, however, reacts with sulphur at temperatures lower than those used in vulcanization, with the formation of hydrogen sulfide. Both the sulfur reaction product and the unchanged piperidine may then use this hydrogen sulfide to form polysulfides with sulfur.

Inorganic Accelerators

Inorganic accelerators that function in the cure by the removal of hydrogen sulfide the writers choose to term "secondary accelerators," while those that function in the same manner as the organic polysulfide accelerators may be classed with them as "primary accelerators." A third class consists of those compounds that are both primary and secondary accelerators.

I. *Secondary Accelerators*—Litharge, zinc oxide, etc., seem to act no further than to form the corresponding sulfides, in connection with hydrogen sulfide polysulfides.

II. *Primary Accelerators*—To this class belong the sulfides and hydrosulfides of the alkali and alkaline-earth metals.

III. *Accelerators That Are Both Primary and Secondary*—In organic oxides and hydroxides function first as secondary accelerators forming sulfides or hydrosulfides which then take up sulfur and act as primary accelerators. Such accelerators are sodium and calcium hydroxides, magnesium oxide and basic carbonate, etc.

Secondary accelerators are believed to function as aids to organic polysulfides by breaking them up into colloidal sulfur and the original nitrogen base. This may be illustrated by the decolorization of polysulfide solutions by litharge or zinc oxide. Ferric oxide does not act as a secondary accelerator, and neither does it readily decompose the polysulfide solutions. The solubility of organic accelerators in sulfur and rubber gives them much more intimate contact with hydrogen sulfide at the time of its formation than is the case with the comparatively large particles of litharge or zinc oxide. Hydrogen sulfide is therefore available for the formation of organic polysulfides before being taken up by the secondary accelerators. The decomposition of a polysulfide by a secondary accelerator regenerates the free base, which with more hydrogen sulfide and sulphur re-forms the polysulfide. Secondary accelerators do not act as true catalysts; once formed into sulfides they do not react again with hydrogen sulfide.

Summary

1—All organic accelerators are believed to function through the formation of some type of polysulfide.

2—Organic bases and compounds that form bases during vulcanization are believed to form polysulfides through the aid of hydrogen sulfide. These are termed "hydrogen sulfide polysulfide accelerators."

3—Thioureas, dithiocarbamates, thiurams, and mercaptan compounds are believed to form polysulfides directly, or by first forming disulfides, and are termed "carbo-sulfhydryl polysulfide accelerators."

4—It is proposed that the function of such compounds as litharge and zinc oxide lie in the decomposition of polysufides into colloidal sulfur and amines.

5—Such inorganic compounds as sodium hydroxide, calcium hydroxide and magnesium oxide are believed to function as "primary accelerators" through the formation of inorganic polysulfides.

The Rubber Goods Markets of British Malaya, Siam and Sumatra

The markets for rubber goods in British Malaya, Siam and Sumatra are the subject of the following article from the Bureau of Foreign and Domestic Commerce, of the Department of Commerce.

British Malaya

[Consul Horace J. Dickinson, Singapore Straits Settlements.]

In spite of the fact that British Malaya is the world's largest rubber producing country, there is no manufacture whatever here of finished rubber products. The advisability of establishing plants for this purpose has frequently come up for discussion but, so far, with no concrete results.

There are but two trade journals in British Malaya devoted mainly to the rubber industry. These are "The Malayan Tin and Rubber Journal," circulating throughout Malaya, Sumatra, Borneo, Java, Siam, Ceylon, and India, and "The Planter," the official organ of the Incorporated Society of Planters, Kuala Lumpur. Both of these journals contain statistical information regarding the rubber industry.

Market for Tires

Some indication of the existing market for rubber tires in British Malaya may be gathered from the fact that the return of licensed motor vehicles and jinrickshaws for 1919 shows the following:

Articles	Federated Malay States.	Nonfederated Malay States.	Articles	Federated Malay States.	Nonfederated Malay States.
	Number.	*Number.*		*Number.*	*Number.*
Motor cars	3,183	283	Jinrickshaws	12,504	482
Motor cycles	1,290	104			
Motor lorries and vans	136	11	Total	17,133	880
Motor buses	20	.....			

The returns of imports and exports for the year 1919 show that the importation of rubber goods into British Malaya including tires, was valued at $4,083,464, Straits currency (Straits Settlements dollar=$0.567 at normal rate of exchange), as against an importation in 1918 of $2,711,632. As the returns for tires alone are not given, it is impossible to say what proportion of the above figures can be applied to that article. Nor do the returns for 1919, so far published, give the countries of origin or the quantities imported. The figures for 1918, however, are more definite in these respects, and are as follows, the money values being in United States currency:

Tires, rubber from—	Value.	Tires, rubber, from—	Value.
British Empire and Protectorates	$327,322	United States	$519,554
France	154,935	Other countries	3,404
Italy	78,208	Total	1,397,157
China	3,044		
Japan	310,690		

These values are based on conversions from Straits currency at the rate of $0.5678.

The methods of distribution are through distributional agents and dealers, and terms of payment are cash. The sizes used are those fitted to all principal cars used in the above-named countries. The clincher is the usual type, although there are a very few of the quick detachable type on the market. The latter, however, are not popular, as owing to the few cars running fitted with these it is not worth while for distributors to stock them.

Rubber Goods for Industrial Purposes and Other Rubber Goods

The market for rubber goods for industrial purposes is a fairly large one although no statistics are available which would indicate its scope. A number of industries are located here requiring these articles, in ever increasing quantities, in connection with shipbuilding, automobile repair shops, railways, public works, and general constructional work handled by the larger engineering firms, municipal undertakings, etc.

There is also a demand in this district for other rubber goods, such as rubber clothing, insulated wire, soles and heels, toys, matting, druggists' sundries, etc., but in the absence of statistics enumerating imports under these several headings the extent of the market can not be ascertained. Numerous inquiries have been made of local dealers in these articles, each of whom reports a limited sale by his own firm, but is unable to hazard an opinion as to the volume of the trade in its entirety. Inasmuch, however, as the population of the city has grown more than 100 per cent since the last census in 1911 and with the completion of the census, which is now being taken, will probably show a return of about 700,000, it is obvious that there should be a growing demand for this class of goods in Singapore.

The trade in these articles is handled by the general import and export houses operating in this city, which acts as a distributing center for practically the whole of Malaya. The terms of payment are usually cash against receipt of shipping documents, although special terms are frequently offered to dealers in these commodities.

Siam

[Vice Consul Carl C. Hansen, Bangkok.]

Rubber goods are not manufactured in Siam nor is there any import of crude or other kinds of nonmanufactured rubber. There are no trade journals devoted to the rubber industry published in this country.

Importation of Rubber Tires

The total imports of motor-car tires through the port of Bangkok during the fiscal year ended March 31, 1919, amounted to 31,011 kilos (kilo=2.2 pounds), valued at 195,357 ticals ($72,282) against 27,860 kilos, valued at 163,136 ticals in 1917-18, and 19,551 kilos, valued at 129,928 ticals in 1913-14. The cycle tire imports reached 7,159 kilos in 1918-19, as compared with 5,608 kilos in 1917-18, and 4,906 kilos in 1913-14; while the figures for all other kinds of tires were 42,735 kilos, 23,993 kilos, and 17,550 kilos, during the respective periods.

The United States and the United Kingdom are the chief sources of supply for Siam's imports of rubber tires at the present time, while prior to the war Germany contributed considerable amounts. United States standard sizes of clincher tires are most in demand owing to the fact that since the war American motor cars have practically dominated the entire Siamese market. Rubber tires are usually imported direct by the dealers who in most instances also sell motor cars and keep repair shops. The usual terms of payment are cash against documents through the local banks or 30 days sight draft.

Rubber Boots and Shoes and Rubber Goods for Industrial Purposes

Owing to the tropical climate and the fact that there are no special industries in this country requiring this kind of footwear, there is practically no demand for rubber boots and shoes.

Statistical details are not available for rubber goods for industrial purposes. However, as rice growing and sawmilling are practically the only industrial enterprises in Siam, belting is likely to form the main imports of rubber goods for industrial purposes. The total amount of all kinds of belting landed at Bangkok in the fiscal year 1918-19 was 73,902 kilos, valued at 420,430 ticals against 60,892 kilos, valued at 263,497 ticals in 1916-17 and 42,042 kilos, valued at 94,941 ticals in 1913-14. The main sources of the imports were the United States and the United Kingdom.

Other Rubber Goods

The most important items in demand under this heading are those of druggist sundries, and perhaps rain coats, insulated wire and cables. According to the customs entries the imports of all rubber manufactures, except tires, amounted to

32,069 kilos, valued at 207,724 ticals in 1918-19, against 30,369 kilos, valued at 189,364 ticals in 1916-17, and 30,167 kilos, valued at 106,812 ticals in 1913-14. The leading countries of origin were the United States, the United Kingdom, and Japan. The terms of payment and distribution are the same as for the foregoing classes of rubber goods.

Countries Supplying Siam with Rubber Goods

The origin and declared value of the rubber goods landed at Bangkok during the six fiscal years ended March 31, 1919, are given below, in Siamese currency of ticals:

Articles and countries of origin.	1913-14	1914-15	1915-16	1916-17	1918-19
Motor car tires:	*Ticals.*	*Ticals.*	*Ticals.*	*Ticals.*	*Ticals.*	*Ticals.*
United States	1,500	91	2,358	24,603	23,513	29,336
France	126	250	.....	.....	2,000	438
Germany	11,312	6,480	.....	.....	.....	.....
Italy	.....	1,271	.....	599	.....	.....
Singapore	21,075	74,233	107,884	111,198	129,871	15,239
United Kingdom .	95,827	21,229	30,238	20,803	7,085	12,132
Cycle tires:						
United States	.....	201	7	702	98	.....
Belgium	.....	234	.....	.....	.....	.....
France	.....	142	.....	.....	.....	2,011
Germany	7,577	1,790	.....	.....	.....	.....
Italy	.....	.....	1,069	.....	.....	.....
Japan	.....	.....	.....	2,857	3,252	2,230
Singapore	11,024	13,464	24,353	26,323	20,944	23,163
United Kingdom ..	16,131	9,796	13,898	27,040	8,354	11,039
All other tires:						
United States	.....	.....	362	1,144	1,325	17,784
France	48	.....	.....	.....	.....	.....
Germany	299	.....	.....	.....	.....	.....
Japan	75	233	47	1,090	1,736	7,477
Singapore	1,974	4,293	10,469	10,605	37,837	45,659
United Kingdom ..	48,924	44,897	34,515	55,858	24,767	47,018
All other rubber goods:						
United States	504	730	2,707	3,287	11,951	32,723
China	.....	363	97	400	610	.....
France	220	2,760	11	156	65	565
Germany	14,408	10,580	1,326	.....	.....	.....
Hongkong	1,853	1,630	1,888	6 009	3,555	2,525
Japan	1,191	1,682	6,984	22,766	21,139	23,577
Singapore	46,249	54,927	75,110	80,725	119,666	129,157
United Kingdom ..	40,965	28,053	30,150	49,442	32 031	18,955

As indicated in the foregoing table, United States trade with Siam in rubber goods has advanced considerably during the last four years. This progress, however, is entirely due to the fact that an American firm established an agency in Bangkok for automobile tires and to the visits of United States traveling salesmen, who brought samples with them.

The rubber goods' trade in this country is sure to advance decidedly within the next few years owing to the greatly increased use of automobiles and cycles and the employment of rubber goods for medical and surgical and for other purposes. The import duty on all classes of rubber manufactures is 3 per cent ad valorem.

Sumatra

[Consul C. O. Spamer, Medan.]

The Medan consular district is a source of crude rubber. Over 50,000,000 pounds were shipped to the United States alone during the year which ended June 30, 1920. There is, however, no manufacture of rubber into articles for commercial use. The sap collected from the trees undergoes but a few simple processes to prepare it for shipment. No raw, scrap, waste, or reclaimed rubber is imported for industrial consumption. There are no trade journals covering rubber manufacture.

By far the most important articles of rubber manufacture imported into this district are automobile and bicycle tires. There are 2,013 motor vehicles licensed in Medan alone. In 1918 the value of automobile tires imported for use in this district was $106,947, United States currency. In 1919 the value of the amount imported rose to $217,360. The figures for the first six months of 1920 are $124,564. No pre-war figures are obtainable owing to the very recent establishment of the Medan Chamber of Commerce, which does the compiling.

The United States dominates the market for automobile tires. Exact figures of tire importations from the various countries are difficult to determine. The ports of transshipment in eastern waters, such as Singapore, Penang, and Hongkong, are often quoted in the customs returns as points of origin. For example, in 1919 Japan is named as the source of a greater value of tires than the United States, whereas a careful examination of the market will disclose no makes of Japanese tires whatever. The statements of the various importers and dealers vary somewhat, but all agree that the preponderance of automobile tire trade (from 60 to 80 per cent) is with the United States, Nearly all the well-known American makes of tires are represented in Medan. The remainder of the field is divided between England and France. The "Dunlop" tire (English) finds a good sale, and also the "Michelin" (French).

During the war it was almost impossible to obtain European cars and accessories. The United Sttaes entered the field and found a ready market. It is estimated that 90 per cent of the automobiles now in this district are of American origin. These cars bring forth the demand for American tres. A few European cars still remain, and for these a supply of English and French tires is kept in stock. European tires are also used to a small extent on American cars.

Method of Purchase of Automobile Tires

Amsterdam or Java firms, which maintain branches in Medan, usually have their own representatives in New York or Amsterdam and other European cities, who order the goods in the country of origin, pay for them in cash (f.o.b. factory), and ship direct to the Medan branch house. When payment is not made in the country of origin the terms for goods of this type are cash against documents. The payments are made through the local banks.

Every make of car imported, whether from America or Europe, requires its own particular size of tire. The clincher type of tire is most popular. The straight side is rapidly growing in favor. The quick detachable type is little known.

Recent Imports of Automobile Tires

The values of imports of automobile tires for 1918 and 1919 and the first half of 1920 were:

Imported from—	1918	1919	Jan.-June 1920.	Imported from—	1918	1919	Jan.-June, 1920
Japan ..	$30,773	$120,571	$23,162	Holland	$5,073		$30
Singapore	36,005	20,313	48,523	Philippines			458
Penang .	6,787	5,246	949	Dutch East Indies			289
United States ..	33,190	65,938	49,346	Total .	$106,947	217,360	124,564
Great Britain .	192	159	1.804				

Bicycle Popular in Sumatra

A great many bicycle tires are sold in Medan. Approximately 12,000 bicycles are on the list of licensed vehicles in this city. All classes of people ride them. They are a convenient means of locomotion about town for both business calls and messenger service. Automobiles are reserved for the more distant plantation trips and social functions. Over 62,000 bicycle tires were imported into this consular district in 1918. There were 30,000 received in 1919 and over 27,000 in the first half of 1920.

The market for bicycle tires appears to be held by the English. The English "Dunlop" tire and several other English and Dutch makes constitute the better grades. A cheap but good tire is made by the Singapore Rubber Works, in Singapore, Straits Settlements. This tire sells locally for a little over 2 American dollars. Considering that the Federated Malay States is also a source of crude rubber, the presence of a rubber factory in Singapore practically closes out any possibility for competition in cheap bicycle tires from the United States. In many cases as soon as the original tire on an imported bicycle wears out a Singapore tire is substituted. Inner tubes, with cover, are the most popular. The size is usually 28 by 1½ inches. The method of distribution is about the same as for automobile tires.

The number of bicycles imported during 1918, 1919, and the first half of 1920 were:

Imported from—	1918	1919	Jan.-June, 1920.	Imported from—	1918	1919	Jan.-June, 1920.
	Number.	*Number.*	*Number.*		*Number.*	*Number.*	*Number.*
Great Britain	8,181	4,514	11,265	Dutch Indies			144
Penang	4,361	3,405	1,390	United States	416	.....	.....
Singapore ...	30,297	13,369	6,578	Total	62,266	30,405	27,101
Japan	19,011	9,117	6,520				
Holland	.....		1,207				

The market for rubber footwear is confined to rubber tennis shoes with canvas tops. The demand for this article fluctuates from year to year according to the rise and fall of the number of tennis devotees among the constantly changing foreign population. Most of these shoes come from the United States. A few come from England. One of the largest furnishing stores in Medan sold about 300 pairs of American tennis shoes last year Another dealer sold 200 pairs. Payment is made by cash against documents or 30 days sight. The distribution is similar to that for tires.

The number of pairs of tennis shoes imported during 1918, 1919, and the first half of 1920 were:

Imported from—	1918	1919	Jan.-June, 1920.
	Number.	*Number.*	*Number.*
Great Britain	58	.....	.....
Penang	218	.....	.....
Singapore	3,686	1,104	316
Hongkong	.....	50	...
Japan	246	.....	.....
Total	4,208	1,154	316

There is no market for rubber overshoes and boots. The natives invariably go barefoot or wear wooden shoes in wet weather. The American or European resident finds rubber too hot for this tropical climate.

Benzol Poisoning in Rubber Manufacturing

By Dr. Robert S. Quinby

The Hood Rubber Co., Watertown, Mass.

The following information regarding benzol poisoning was recently included in a bulletin of the Rubber Association of America:

The Report

The records of the State Board of Labor and Industries of Massachusetts state that, in three years, the rubber industry reported five fatal cases of benzol poisoning. During the past year and a half no new cases have been reported in Massachusetts, this being due mainly to the fact that benzol has been replaced by solvent naphtha, or some other less dangerous solvent.

The usual commercial products of benzol are:

1—Pure benzol, which has been the cause of most of the cases of poisoning in the rubber industry.

2—90 per cent benzol, so called because 90 percent should distill at a temperature of 100 degrees C. According to Rambousek this product is made up of from 80 to 85 per cent benzol, 13 to 15 per cent toluol, 2to 3 per cent xylol, and contains as impurities traces of olefines paraffines, and sulphuretted hydrogen.

3—50 per cent benzol, which contains 50 percent of bodies distilling over at 100 degrees C. This contains only from 40 to 50 per cent benzol.

4—Solvent naphtha, which derives its name from its extensive use in dissolving rubber. It contains no benzol, but consists of xylol, homologous bodies and other hydrocarbons, which as yet have not been determined.

Benzol is a colorless, volatile fluid which boils at 80.5 degrees C. While many of the reported cases have been apparently due to commercial benzol, most of those cases in the rubber industry have been caused by the pure benzol. The commercial benzols contain toluol, methyl benzol, xylol, pseudocumene, mesytelene and thiophene. Glasser also found in the samples of commercial benzol which had produced poisoning in a canning factory, small amounts of aniline and bitrobenzol, which latter substance was present in amounts of from 1 to 7 millegrams per 1000 cubic centimeters.

There seems to be some difference in the toxicity of pure and commercial benzol. The older reports indicated that the commercial benzol was more dangerous than the pure. The cases reported in the rubber industry would seem to indicate that this conclusion is unfounded, as there seems to be a direct relation to the boiling point of the solvent and its power to do harm; the solvents of lower boiling points appearing to be more toxic than those of higher boiilng points.

We would naturally expect, as is actually the case, meteorological conditions to effect susceptibility to benzol poisoning. Thus, in hot humid days, or in the interiors where the air is hot and stagnant, poisoning is more likely to occur because of the greater volatility of the benzol under these conditions, and also perhaps of the increased pulse-rate and hence the greater flow of blood through the lungs.

Poisoning by benzol in industrial processes arises, for the most part, by inhalation of the fumes. Its warm vapor is especially poisonous. We may also consider that benzol, like many of its derivatives, especially aniline, may be absorbed through the skin, because of its fat-dissolving properties.

The symtoms naturally vary with the individual susceptibility and the amount of poison absorbed. When concentrated vapor of benzol is inhaled death may occur suddenly, after a short period of malaise and dizziness. With lesser quantities gradually inhaled, we have feelings of dizziness, headache and malaise. As the absorption increases, symptoms referable to the nervous system make their appearance. Twitchings appear, often involving all muscles so as to give the impression of severe shivering. These may later develop into convulsions, followed by loss of consciousness. While the skin and visible mucous membranes are pale, the appearance of the patient is somewhat livid, the cyanosis so characteristic of aniline poisoning does not appear to take place in benzol poisoning. The pupils are usually dilated and, in severe poisoning, are without reaction to light. The respiration, which was in the beginning accelerated and superficial, gradually gets lower toward the end. The pulse is small and frequent. According to Lewin the blood pressure is diminished because of dilation of the blood vessels from central paralysis. A decided reduction in number of white blood cells is always noted in cases where the white blood count fell to 140.

Symptoms of Poisoning

Where smaller amounts of benzol are breathed over a long period, in addition to loss of appetite, headache, dizziness, weakness, malaise and attacks of vomiting, coupled with steadily increasing pallor, purpuric phebomena are observed. Numerous hemorrhages occur, especially from the gums, mucous membranes of the nose and mouth. There is a predisposition to uncontrollable hemorrhage from small wounds. The predisposition to hemmorhage is especially marked among women during the menstrual period. Chronic poisoning by benzol produces profounded changes in the blood, which resemble those present in pernicious anemia. We find great diminution in the number of white cells, anisocytosis, the presence of megaloblasts, and also degeneration of the red blood cells. The remarkable condition of the blood characteristics is the decrease in white cells. The blood serum contains fat in considerable quantity, and the urine is likely to contain albumin and casts. The presence of fat in the urine is a striking and characteristic symptom.

Benzol is principally eliminated by the lungs and kidneys. The odor of the breath, therefore, is peculiar to benzol.

Precautions for the avoidance of benzol poisoning seems obvious. Benzol, should, where possible, be replaced by solvent naphtha, xylol, toloul, carbon tetrachloride, or xylol compound. Where it is necessary to use benzol, every precaution should be made to secure adequate ventilation.

Employees exposed to benzol should be examined by the physician at least once a month. A blood count, and the coagulating time of the blood should be taken at each examination. Workers should be free from any organic disease, especially of the kidneys or heart, which diseases tend to retard elimination. As soon as individuals show a diminution in white blood cells, the work should be changed.

NEWS OF THE INDUSTRY

News -- Personals -- Financial -- Building Activities -- New Products

Rubber Products Specifications Discussed

Members of Committee D-11, of the American Society for Testing Materials Hold Interesting Meeting in New York City— Many Important Changes Considered

Members of Committee D-11, of the American Society for Testing Materials held an interesting meeting on rubber products on February 8, at the Engineering Societies Building, New York, at which time a number of important matters were discussed.

The meeting was called to order at 10:40 a. m. by Chairman F. M. Farmer there being over twenty members of the committee in attendance. Following the circulation of the minutes of the previous meeting the chairman stated that the secretary of the society was desirous of learning the sentiments of the members in regard to the society becoming a member of the Federated Engineering Societies. After a discussion the business of the meeting was resumed.

Sub-Committee I. on Air Line Hose

The chairman reported that Sub-Committee I on Air Line Hose recommended a change in the title of Air Line Hose Specifications and that it be made to read as follows: "Standard Specifications for Wrapped Hose for Use with Pneumatic Tools". In addition to this the title of the specifications covering leader hose was recommended to be changed to "Standard Specifications for Braided Hose for Use with Pneumatic Tools".

Wrapped Hose: Among the major changes proposed in the text of these specifications it was recommended that Section 9 (b) be deleted and in its place a test be substituted limiting the amount of expansion which shall take place in the diameter of the hose under pressure. The amount of pressure to be applied and the amount of expansion have yet to be determined. In Section 13 it was recommended that the minimum tube thickness be made 3/32 inches for all sizes and that similarly the cover thickness be made 1/16 inches. The sub-committee recommended that the present air line hose be withdrawn as a standard. With the foregoing revisions and certain minor revisions of the test, the sub-committee reported the specifications as practically ready to submit to the committee for letter ballot as a tentative standard. The report was accordingly accepted and the revised specification was ordered to be submitted to the committee for letter ballot vote.

Braided Hose: These specifications at the present time cover only 7/16 inch hose. It is proposed to revise them to cover the same sizes of hose as are covered by the wrapped hose specifications. Section 9 (b) will be deleted and an expansion test on the completed hose substituted . The tensile strength test will be materially reduced in view of the statements of the manufacturers, and other tests to correspond. The sub-committee not having completed its work in connection with these revisions was not prepared to make a report but expects to be able to do so at the next meeting of the main committee.

Sub-Committee II. on Belting

In the absence of the chairman E. S. Teed reported that Mr. Campbell had revised the belting specifications which had been reviewed by the members of the sub-committee present, and an agreement had been reached which, it was believed, would be satisfactory to all members of the committee. If this is found to be the case the specifications will be ready to be sent out for a letter ballot.

Sub-Committee III. on Cold Water Hose

E. A. Barrier reported that he had been unaware of the appointment of additional members to this sub-committee and had therefore not arranged for consultation with them. In regard to the motion carried at the previous meeting that the two cold water hose specifications be combined and made to agree with the general requirements of the National Board of Fire Underwriters; he moved that this resolution be considered as he did not believe it advisable to eliminate the 2½ inch hose as a standard.

Sub-Committee IV. on Protection of Persons from Electric Shock

In the absence of the chairman the specifications were presented by F. M. Farmer. Section 12 was revised to read as follows: "The manufacturer shall guarantee to replace without cost to the purchaser gloves which fail to pass the herein prescribed test within eight months after the original test, provided the gloves were stored in their boxes at a temperature not to exceed 75 degrees Fahrenheit. As revised the specifications were ordered submitted to letter ballot as a tentative specifications.

Sub-Committee V. on Insulated Wires

Chairman S. C. Potts reported that the specifications had been materially revised by the sub-committee. The principal changes resulted from the adoption of A.I.E.E. tables throughout. As revised the sub-committee was prepared to have them submitted to letter ballot as a revision of the tentative specifications.

Sub-Committee VI. on Packing, Gaskets and Pump Valves

Dr. A. A. Somerville reported that in consultation with the chairman the question had been thoroughly canvassed as to whether it was practical to prepare specifications for packing, gaskets and pump valves in view of the fact that chemical tests of these products were impractical and that the purpose for which these products were used were so diverse that no single product would satisfactorily meet the requirements of a majority of the output. It was considered that the industry would be best served by continuing the present practice of determining, under actual test, the character of the product which was most suitable for the purpose for which it was employed. It was decided to accept this report and discharge the committee. Accordingly Sub-Committee VI is now discontinued.

Sub-Committee VII. on Steam Hose

Chairman J. B. Young advised that he had no report to submit of changes on the specifications for steam hose but in view of the fact that some changes will be made in the near future in the M.C.B. specifications, which it would be probably well to consider, it was recommended that the present specifications be reduced to tentative status so that it would not go into the three year Board of Standards.

Sub-Commitee VIII. on Definitions and Nomenclature

Chairman J. M. Bierer reported that no progress had been made but that some work would be taken up at once. The chairman added C. R. Boggs, E. S. Teed and H. P. Hass to this sub-committee.

Sub-Committee IX. on Rubber Insulating Tape

No changes were reported to be made in the specifications for rubber insulated tape and it was recommended that they be advanced at the June meeting

Sub-Committee X. on Standard Procedure of Methods of Tests

F. M. Farmer announced that E. A. Barrier had asked to be relieved of the chairmanship of this sub-committee and accordingly proposed A. H. Nuckolls as a new chairman with the result that the change was made. W. W. Evans was added to the personnel of this committee.

A letter was then read from Dr. Stratton of the Bureau of Standards outlining a rubber products investigation which the Bureau proposed to undertake and upon which comments were requested. It was the sense of the meeting that the Bureau should take up as a subject for first investigation the matter of an accelerated aging test for rubber products for factory use which would enable manufacturers to determine quite readily how satisfactory their products would be under service conditions. Following a short discussion the meeting was adjourned.

Activity Increases in Akron

Business in the tire industry already is showing improvement, according to the latest reports from Akron. Each week sees a quickening of the business pulse. Orders for tires are being received in larger numbers. The open winter has been a godsend to the industry, creating a demand for tires greater than in any other year. The effect of this demand is now becoming apparent.

Rubber manufacturers in Akron feel that the depression will ultimately react to the benefit of Akron's industrial life. They believe that the future growth of the rubber industry will be gradual and healthy. They expect no sudden leap back into the "peak" activity of a year ago, nor will there be "overnight" expansions which brought thousands of laborers in the past.

In announcing that the number of employees would undoubtedly be materially increased within the next three months, tire company executives emphasize the point that only Akron men will be taken back first. Men who have homes in Akron will be given first chance at the jobs. Many months will probably elapse before men from other cities can find work.

In commenting on the prospects for the future an official of one of the largest companies said:

"Each week is showing improvement over the week before. How long it will be before a normal status returns is merely a matter of conjecture, and one person's guess is as good as another's. It is certain, however, that spring will bring with it an increased demand for tires. We confidently believe that the last six months of the year will be normal.

"In considering what the future has in store one fact must be taken into consideration. That is that the tire industry differs from other industries in respect to the certainty of the demand for its products. Over a period of time, two years, for instance, the demand can be estimated to a very accurate degree. The number of tires needed during that period will not fluctuate greatly regardless of the business conditions of the country.

"For a time motorists may stop buying tires, using their spares and their old casings until they are worn to ribbons. The cessation of buying, however, cannot exist over a long period of time, simply because without tires passenger cars and motor trucks are useless. Sooner or later new tires must be bought, and the longer the period of non-buying the greater the accumulative demand."

Clark Rubber Co. Organized

Leon B. Conant of Boston and Maurice C. Clark and Herbert L. Metcalfe of Franklin, Mass., have formed a corporation under the name of the Clark Rubber Company, with a capital stock of $100,000, $70,000 preferred and $30,000 common. The officers are Maurice L. Clark, president and treasurer, and Herbert L. Metcalfe clerk, and they are also members of the board of directors.

The new company which has just been incorporated under the laws of Massachusetts, intends to operate in Franklin, Mass., in the manufacture of patented rubber heels solely for the manufacturing trade, and negotiations are nearly completed for the purchase of a location.

California Goodyear Progressing

During a period of six months' actual operation, since the completion of the new plant of the Goodyear Tire & Rubber company of California, production has averaged well above 900 tires a day, according to the statement of A. F. Osterloh, vice president and general manager of the company at Los Angeles.

"Since the firing of the boilers last June the plant has been in operation daily, without interruption, except for several days at inventory time. The crest of tire production was reached in September when 1850 tires were finished and 2025 tires were cured in a single day. Since that time tire production has been curtailed to 850 tires and 1000 tubes daily to square with diminishing demand.

"About October 1 a noticeable decline in the demand for tires affected all tire companies, so that all of them have curtailed production while some have actually discontinued altogether. Our California plant, however, is still operating on a 5½ day per week schedule—a performance that no large Eastern manufacturer is duplicating.

"Our volume of business for November, the first months of our new fiscal year was in excess of that for November of last year, and the total for the month of December ran well ahead of the previous month.

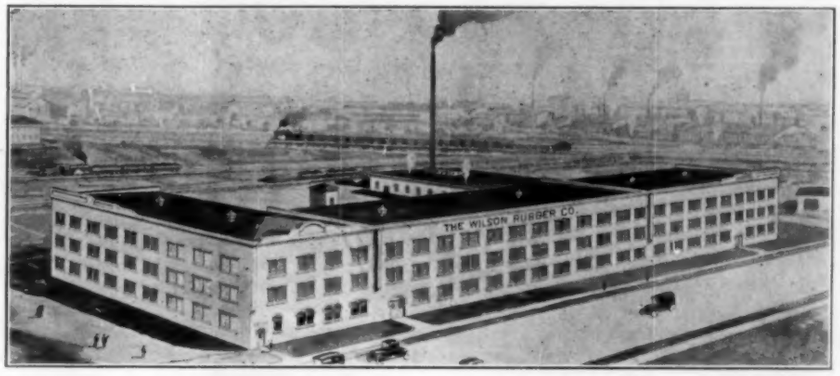
"This showing is accounted for in increased sales to dealers and automobile manufacturers.

"There has been much comment concerning large stocks of tires in the West, but I believe this has been greatly exaggerated. In the tire business it is necessary to look quite a distance ahead and a stock of tires sufficient for several months is a normal supply. We have in our branch territories now only tires enough to supply dealers' requirements till March 1, and there is a possibility that when weather conditions in the spring permit the operation of cars in regions where their use is attended by difficulties now, there may be an actual shortage of tires."

Wilson Rubber Enlarges

Announcement has been made to the effect that the Wilson Rubber Company, Canton, Ohio, has begun the construction of a three-story addition, 50 by 100 feet, to its factory. The addition, which is of brick and steel construction with concrete floors, is so designed as to permit the further addition of two or more stories should the growth of the company's business demand more factory room.

At a recent meeting of the board of directors of the company John S. Willis, was elected president, F. J. Wilson, vice-president and general manager, and Wendall Herbruck, secretary and treasurer. The stockholders at the recent annual meeting re-elected the same board of directors with the exception of Judge S. G. Rogers, deceased, Dr. Thomas A. Burke, of Cleveland, was elected in Judge Roger's place. The members of the board are as follows: John S. Willis, Charles Willis, Wendall Herbruck, Henry Bernhard, F. J. Wilson, Harry S. Payer, all of Canton, and Jacob DeKaiser, Louis M. Faber and Dr. Thomas A. Burke, of Cleveland.



Plant of Wilson Rubber Co., Canton, Ohio

At the above mentioned meeting of the board of directors a ten per cent dividend was declared to all common stockholders for the year 1920. Announcement was recently made that the capital stock of the company had recently been increased from $150,000 to $500,000.

Columbia Offices in Mansfield

The new offices of the Columbia Tire & Rubber company, West Sixth street, Mansfield, Ohio, have been opened and the greater part of the main office building has been made ready for occupancy.

It is planned to move the Columbiana offices from that city to Mansfield following which the great majority of the business will be transacted from Mansfield.

K. & S. Factory on Production

Word has been received from the K. & S. Tire & Rubber Goods Ltd., Toronto, Canada, to the effect that the firm's new tire and tube factory has been completed and is turning out 200 tires and 300 tubes a day. Orders are on hand to warrant a 24 hour working day until the end of the tire season.

Ajax Issues Annual Report

That the Ajax Rubber Co., Inc. is in a position to make the most of improving conditions in the rubber field may be noted from the statements of Horace DeLisser, chairman of the board of directors, which accompanied the report for the year 1920. Inventories have been written down, the company is not heavily committed on contracts and an excellent start has been made in the company's first year of effort in the export field.

Total sales for the year 1920 amounted to $18,639,866.51 and these less discount, freight and allowances amounted to $17,515,361.42. After deducting the cost of sales, provision for depreciation of plants, equipment and adjustment of inventory valuations and adding discounts on purchases and miscellaneous income the net income totalled $4,161,634.67. Selling and administrative expenses and interest on borrowed money came to $4,339,555.39. Accordingly the loss for the year carried to the balance sheet amounted to $177,920.72.

Following is the balance sheet as of December 31, 1920:

ASSETS

Land		$232,853.63
Building machinery and equipment		2,957,756.32
Houses for employees		1,067,766.00
Other property		17,410.91
Patents and good will		1,874,875.16
Inventories		7,408,967.63
Open accounts	$3,609,244.09	
Notes receivable	1,105,093.34	
Less—		
Reserves for rebates	754,390.35	
		3,959,947.08
Accounts receivable and advances		188,183.00
U. S. Victory Loan notes		7,351.00
Sundry investments		23,547.89
Cash in banks and on hand		301,990.31
Deferred charges to future operations		336,205.02
Total		$18,376,853.95

LIABILITIES

Capital stock	$10,000,000.00
Notes payable	6,145,000.00
Accounts payable	528,291.72
State and excise taxes payable	88,081.34
Surplus	795,480.89
Premium on capital stock sold (as at January 1, 1920)	820,000.00
Total	$18,376,853.95

Kelly-Springfield Statement

The Kelly-Springfield Tire Company on February 18 issued its statement of income for the year ending December 31, 1920, together with the balance sheet as of the same date. Following is a short announcement by President Frederick A. Seaman which accompanied the statement which was issued to stockholders of the company:

"The company has no supplies of or contracts for raw materials at former prevailing high prices, and is in a position to take advantage of present low levels for its future requirements.

"The result of the first nine months' business showed an improvement over that of the preceding year, while there was a marked falling off of sales the last quarter. Net profit on sales for the year is $3,480,914.85.

"After taking into account other income additions and deductions, including a reserve of $500,000 for inventory, the net income before Federal taxes for the year amounts to $1,959,293.43.

"The completion of the new plant at Cumberland, Maryland, has been somewhat delayed, but it is expected that the plant will be in operation during March of this year."

Following is the balance sheet as of December 31, 1920:

Tire Requirements for 1921

The maximum requirement for tires in the United States will be from 28,000,000 to 30,000,000 tires during 1921, said John J. Watson, Jr., president of the Lee Tire & Rubber Co., in a recent interview.

"It is estimated," said Mr. Watson, "that production of automobile tires during the spring of 1920 exceeded 150,000 a day. The production during November and December of the same year fell to about 35,000 a day, less than the daily production of the larger tire companies during the spring of that year. In other words, production of tires from spring 1920 to the fall of the same year fell to between twenty per cent and twenty-five per cent of the maximum productive capacity.

"Some of the best authorities estimate that in 1921 there will be produced about 1,000,000 new cars and trucks. Of those now in use it is probable that from 500,000 to 750,000 will go into the scrap heap this year, so that the increase in 1921 will probably be 500,000 or about 9,000,000 motor vehicles in use in 1921.

"On this basis, the country would require about 4,000,000 tires for new cars and with the 8,000,000 old cars in use, it would require approximately 24,000,000 tires to supply renewals. It is estimated that the tire companies have at their factories and in the hands of their branches at present about 6,000,000 tires. This is only about 2,000,000 more than would be necessary for them to have on hand at all times. So to carry the normal stock to supply their business it would seem that about 25,000,000 tires should be manufactured by the companies this year for domestic use. Production to supply this need should be at the rate of about 100,000 tires daily."

KELLY-SPRINGFIELD TIRE CO. BALANCE SHEET—DECEMBER 31st 1920

ASSETS

Current Assets:			
Cash in Bank and on Hand		$ 2,182,089.38	
Accounts Receivable, less Reserves		2,100,358.46	
Notes Receivable (Other than Customers)		114,419.68	
Capital Stock Subscriptions (since paid)		9,950.00	
Inventories of Merchandise Materials and Supplies (at cost, at average price for crude rubber of approximately 26 cents per pound)		9,751,388.22	
Balance Receivable from City of Cumberland, Md., on commencement of operations in new plant		225,000.00	
			$14,383,205.74
Common Stock Purchased for resale to employees:			
Cost	$ 2,019,029.89		
Less:			
Employees' subscription payments and loan (being liquidated by employees' payments)	1,744,278.18		
			274,751.71
Sundry Investments (at cost)			152,946.00
Deferred Charges to Future Operations			234,389.77
Capital Assets:			
Property and Equipment Accounts, Patent Rights, etc. (less Reserves for Depreciation)	$10,242,269.03		
Property and Equipment of Cumberland, Md., Plant, not yet in operation	11,006,380.33		
			21,248,649.36
			$36,293,942.58

LIABILITIES

Current Liabilities:			
Capital Stock:			
Trade Accounts Payable		$ 217,412.17	
Notes Payable		8,155,000.00	
Accrued Taxes (other than Federal), Accrued Wages and other accruals		135,653.38	
Reserve for extra compensation on Profit-sharing basis		83,378.28	
Dividend, 1½ per cent on 6 per cent Preferred Stock, payable January 3rd, 1921		48,556.50	
		$ 8,640,000 33	
Construction Accounts' Payable		346,490.46	
			$ 8,986,490.79
Reserves:			
For Fluctuation in Inventory Valuations		$ 500,000.00	
For Automobile Collision Insurance		10,535.04	
			510,535.04
Deferred Credit to Surplus:			
Final Instalment ($25,000.00 paid) of bonus from City of Cumberland, Md., due on commencement of operations in new plant			250,000.00
Capital Stock:			
6 per cent Cumulative Preferred Stock: Issued	$ 3,758,200.00		
Less:			
Redemmed and Cancelled	521,100.00	$ 3,237,100.00	
8 per cent Cumulative Preferred Stock:			
Issued and Outstanding		5,860,200.00	
Common Stock:			
Issued and Outstanding	$ 8,061,150.00		
Warrants Outstanding.	23,091.50		
		8,084,241.50	
			17,181,541.50
Surplus:			
Capital Surplus, arising from premiums on sale of Common Capital Stock		$ 1,640,360.00	
Appropriated Surplus (under Certificate of incorporation) for 6 per cent Preferred Stock Cancelled		521,100.00	
General Surplus, as per Statement attached (subject to Federal Income and Excess Profits taxes)		7,203,915.25	
			9,365,375.25
			36,293,942.58

Jones Heads Kelly-Springfield

Announcement was made on February 23 of the election of A. B. Jones as president of the Kelly-Springfield Tire Company. Mr. Jones succeeds F. A. Seaman who has been acting president of the company for several months past.

The new president is a graduate of Princeton University and was educated for the engineering profession. Following a considerable period of time spent with the Pennsylvania Railroad Mr. Jones became identified with the Diamond Rubber Co. and later with the B. F. Goodrich Co. Several weeks ago he resigned as vice-president of the Goodrich company the report being current at the time that he was to become associated in a high executive capacity with another large rubber comany.

Mr. Seaman, whom Mr. Jones succeeds, will occupy the position of first vice-president of the Kelly-Springfield Tire Company.

Black Hawk Tire Elects

More than 200 stockholders attended the second annual stockholders' meeting of the Black Hawk Tire & Rubber company which was held February 15th, at the company's plant, Des Moines, Iowa. The principal speaker at the meeting was A. J. Knapp, secretary of the Iowa Motor Trades bureau.

In his talk before the stockholders, Mr. Knapp declared that the period of business depression had passed and that tire manufacturers and others connected with the automotive industry will have one of the biggest years in their history during 1921. He declared that the motorists of Iowa will buy over $40,000,000 worth of tires this year.

Other speakers at the meeting were John Gibson, president of the Mechanics Savings Bank, E. A. Lewis, secretary, H. G. Curtis, sales manager of the company, Paul Anderson, factory superintendent and C. E. Riess, chemical engineer.

The stockholders voted unanimously to re-elect the following board of directors. William Moran, J. J. O'Malley, E. A. Lewis, A. J. McColl, John C. Kirby and Fred German.

Protection Against Price Decline

The following bulletin has been sent to members of the Rubber Association of America under date of February 25:

To Firm Members:—

Members will recall that a Committee composed of representatives of several members of the Tire Manufacturers' Division and the Footwear Division of this Association, appeared before the Federal Trade Commission, Wahington, on October 5, 1920, and later filed a brief with that body, in connection with its inquiry into the practice of guaranteeing to the distributor or dealer protection against loss on goods unsold in the event of a decline in prices.

Formal announcement has been made by the Federal Trade Commission that it will take no definite stand for or against the practice as the result of the hearings which have been held at Washington for the purpose of obtaining views of all interested parties, but will consider each case of complaint brought before at in the future upon the facts shown in the specific case and will apply the legal tests.

The announcement, dated February 15, is in the following form:

"In view of the large number of complaints received by the Commission against the practice, and in view of the inquiry instituted by the Commission, resulting in expressions from more than 350 manufacturing and selling concerns including trade associations whose represented membership must be more than double the number of individual statements, the results shown may be taken, the Commission believes, to be representative of the difference in business opinion on the subject. *The Commission has decided, therefore, to consider each case of complaint of this character upon the facts shown in the specific case, applying the legal tests thereto. ..This action involves neither approval nor disapproval of the economic soundness of the arguments advanced before the commission for and against this practice, the commission wishes it made known.* The Commission's attitude towards this practice will, therefore, be developed by its disposition of the large number of complaints involving guarantee against price decline now pending on the docket."

American Tires in Scandinavia

The value of the United States' export of tires to Scandinavia during the first eleven months of 1920, according to the Swedish-American Trade Journal, was as follows: Sweden, $2,584,696; Norway, $1,354,537, and Denmark, $939,824.

The following American brands are represented in Sweden, and competition is very keen: Federal, Firetone, Fisk, Goodrich, Goodyear, Hood, Lee, Madison, McGraw, Mohawk, Miller, Pennsylvania, and the United States. Some of the automobile dealers have tire agencies, and other dealers carry on business exclusively in tires and accessories. The United States, Goodyear and Goodrich are sold by dealers of the latter kind, whereas Firestone and Fisk are handled by automobile companies. The Swedish agencies for several American brands, among them one of the highest priced, have been placed with firms in Norway or Denmark.

There are a few Swedish manufacturers, of which Trelleborg and Gislaved companies are the best known. The following European brands are also on the market: Dunlop, Michelin, Oyler and Clincher Cross. The tires used are generally non-skid cord. It might be added that a few dealers are at present carrying a heavy stock.

Pennsylvania Reduces Wages

The Pennsylvania Rubber Company has announced an adjustment of their wage scale effective February 1.

The reduction in wages by the Jeannette, Pa., firm is in line with other rubber concerns of the country.

Firestone's New Prices

The Firestone Tire & Rubber Co., Akron, Ohio, has issued, under date of February 1 a revised price list which supersedes all previous lists. A new departure is noticed in the fact that the "without service" In other words the prices are quoted "with service" and manufacturer fixes the legitimate charge which the dealer may levy upon the customer for mounting the tire.

CORD CASINGS

Size	WITH SERVICE Triple or Non-Skid Tread	WITHOUT SERVICE Triple or Non-Skid Tread
†30x3½	$31.45	$29.90
§32x3½	41.55	39.45
§32x4	52.80	50.15
§33x4	54.45	51.70
§34x4	55.85	53.05
§32x4½	59.75	56.75
§33x4½	61.10	58.05
§34x4½	62.65	59.50
§35x4½	°64.50	°61.30
§36x4½	°65.85	°62.55
§33x5	74.40	70.70
§35x5	‡78.10	‡74.20
§37x5	°¶82.15	°¶78.05

FABRIC CASINGS

Size	—WITH SERVICE— Smooth Tread	Non-Skid Tread	-WITHOUT SERVICE- Smooth Tread	Non-Skid Tread
†30x3	$14.20	$15.70	$13.50	$14.95
†30x3½	*17.50	18.75	*16.65	17.85
§32x3½	*23.00	25.55	*21.85	24.25
†31x4	*26.05	28.30	*24.75.	26.90
§32x4	30.60	33.95	29.05	32.30
§33x4	32.10	35.70	30.50	33.90
§34x4	*32.85	36.45	*31.20	34.65
§32x4½	*40.90	45.45	*38.85	43.20
§33x4½	*42.20	*46.90	*40.10	*44.55
§34x4½	*43.60	*48.45	*41.40	*46.05
§35x4½	....	*50.60	....	*48.05

† Clincher
§ Straight Side
‡ Also Q. D. Clincher—Non- Skid Tread only
¶ Also Q. D. Clincher
° Non-Skid only
* Subject to sale while Stock lasts

LAMINATED CURES

Size	Grey	Red
30x3	$2.60	$3.20
30x3½	3.05	3.70
32x3½	3.50	4.00
31x4	4.20	4.65
32x4	4.40	4.85
33x4	4.55	5.10
34x4	4.70	5.25
32x4½	5.55	6.15
33x4½	5.70	6.40
34x4½	5.80	6.55
35x4½	5.90	6.75
36x4½	6.20	7.10
33x5	6.85	7.60
35x5	7.15	8.05
37x5	7.30	8.45

Tozier Resigns from Polack

E. B. Tozier has resigned as president and general manager of the Polack Tyre & Rubber Company of New York City, the Polack Company having been absorbed by the Buckeye Rubber Products Company, of Willoughby, Ohio. Mr. Tozier has made no announcement in connection with his future movements except that his New York headquarters will be at the office of the Buckeye Rubber Products Company, 527-9 W. 23rd St., New York.

Berlin Heads Victor Rubber

H. S. Berlin, who has been division plant manager of the Firestone Tire & Rubber Co., was recently elected president of the Victor Rubber Co., of Springfield, Ohio. Mr. Berlin succeeds H. H. Durr, of Springfield, who becomes secretary and treasurer of the company.

In addition to the election of Mr. Berlin W. L. Timmonds, of Cleveland, was chosen vice-president; C. A. Swinehart, Cleveland, sales manager and Frank Talbott, factory manager.

Rubber Association Meetings

The following committee meetings of the Rubber Association were held recently:

Executive Committee—Tire Manufacturers' Division: A meeting of the executive committee of the Tire Manufacturers' Division of the Rubber Association of America was held in New York City on February 16th, at which time a number of important matters of interest to tire manufacturers were considered.

Chief among these, perhaps, were the subjects of the support tendered by the Rubber Association to various good roads organizations, and the adoption of a standard schedule of loads, tire carrying capacities, etc. for the recommendation to legislatures contemplating the enactment of motor vehicle legislation. The question of further standardization in the sizes of automobile tires emphasized the need in the association's organization for a technical committee which would have as its primary purpose the consideration of all tire standardization matters, and it is felt that a step in the right direction was taken upon the appointment of a Committee of five members of the executive committee to comprise a Technical Committee of the Tire Manufacturers' Division of the association through which all standardization projects are to be progressed.

The "returned goods" problem, which is probably one of the most important now confronting the tire manufacturers of the country, was also the subject of a very interesting discussion.

Cycle Tire Manufacturers' Committee: A meeting of the Cycle Tire Manufacturers' Committee of the Tire Manufacturers' Division was also held on February 16th at the Rubber Association offices.

The recommended standardization of bicycle tire sizes submitted by the cycle trades of America, and the suggestion that statistics be gathered with respect to the bicycle tire manufacturing industry somewhat along the lines now in use in the Tire Manufacturers' Division of the association with respect to the inventory, production and shipments etc. of automobile tires and tubes, served as the main topics of discussion.

Executive Committee—Mechanical Goods Division: A meeting of the executive committee of the Mechanical Rubber Goods Manufacturers' Division was held on February 15th in New York City. Steps were taken at the meeting to institute a plan for gathering statistics regarding the mechanical rubber goods manufacturing industry with respect to the inventory, production and shipments of various classes of mechanical rubber goods.

Consideration was also given to the suggestion that standard equipment be prepared for repairing conveyor belts and for splicing small endless belts in the field and as a result a committee, in conjunction with the specification committee, was appointed to investigate the possibilities in that direction for later report to the executive committee.

Another Sub-committee was appointed having as its purpose the standardization of pulleys used in connection with rubber belting insofar a their installation, sizes, diameters, etc. are concerned, and with the co-operation of pulley manufacturers very interesting and useful results are anticipated.

Executive Committee—Foreign Trade Division: The executive committee of the Foreign Trade Division met with the general manager and P. L. Palmerton, the newly appointed manager of the association's Foreign Trade Bureau at its offices on February 17. A discussion of the contemplated activities of the bureau consumed practically the entire session.

Board of Directors: A meeting of the association's board of directors and its executive committee is to be held at the Union League Club, New York City, on Friday, February 25. The docket will be given over entirely to the recommended expansion of the association's organization and activities.

Condition of the Malayan Rubber Industry

Word has been received from Consul Horace J. Dickenson, Singapore, that a meeting of representatives of all planting communities was held at Kuala Lumpur, on December 29, at which the following resolution was unanimously adopted:

That this meeting of representatives of all planting associations in Malaya and other bodies in Malaya having interest in the rubber-growing industry, approves and supports the recommendations formulated by the special committee which met on December 19, at Kuala Lumpur.

This special committee had been formed at the instance of the Chief Secretary to the Government of the Federated Malay States to formulate proposals to guide the government in determining its policy regarding the present crisis in the rubber industry. Roughly, the scheme amounts to this: The committee asks that government assistance be afforded to regulate output to the extent of insuring a reduction of 50 per cent; that further alienation of land be stopped; and that government help in the form of loans be available for estates requiring it.

Large Surplus Stock of Rubber

In support of the recommendations made by the committee it was pointed out that the rubber industry was suffering from a production in excess of consumption, a process which had led to a large and increasing surplus of rubber in the consuming countries of the world. To form anything like an accurate estimate of the stocks of any commodity was difficult, but the following figures relating to existing stocks of rubber were submitted—not as being correct, but as giving some idea of world stocks at the end of December, 1920. They were carefully compiled in Singapore and were as follows:

	Tons.
In America:	
In New York, in hands of manufacturers, and in transit, within the continent	120,000
In London	50,000
Afloat:	
Less than normal owing to restricted output	40,000
In the East:	
Singapore	25,000
Colombo	5,000
Netherlands Indies	15,000
Estates	35,000
Continental Europe, Japan, Australia, South America, and Africa	20,000
Total	310,000

Stocks at the end of 1919 at a time when business was active were estimated at 240,000 tons. Under present conditions of trade the normal stock for the world might be put at 175,000 tons. On this assumption the world's stock of rubber at the end of 1920 was 135,000 tons greater than it should be.

British Controlled Territory Largest Source of Supply

Accurate statistical figures of areas planted in different parts of the world were unfortunately lacking, but from information available to the committee it would not be far wrong in assuming that Malaya, with an estimated planted area of 1,600,000 acres, carried about half the world's planted acreage and produced from 175,000 to 200,000 tons, or, roughly, half the world's normal supply of rubber. The Netherlands East Indies were said to be producing at the rate of 85,000 to 90,000 tons a year; Ceylon, south India, and Burma made up most of the balance. It might be said, therefore, that approximately 75 per cent of plantation rubber was produced in territories under British administration and 25 per cent in Dutch territory.

Lack of Organization in Industry

The difficulty in Malaya was that there was no single body or organization so constituted as to be in a position to coordinate planting opinion or speak for the industry in this country as a whole. It was not, therefore, greatly to be wondered at that the organization necessary to proper control had been lacking. Hitherto most of them had looked to London to the Rubber Growers' Association for guidance, but the present difficulties appeared to be more than that body could successfully cope with, and the industry had been compelled to appeal to the Government of the Federated Malay States for assistance.

The recommendations speak for themselves. They aim at keeping rubber off an overstocked market and at rendering financial assistance under certain conditions. The first remedy for the trouble lies in taking action to reduce stocks. The committee in their recommendations have endeavored to avoid complicated measures and have aimed at simplicity. The measures of restriction advocated are drastic, but in view of existing conditions are probably not too much so. It is conceivable that they may be found not drastic enough. A curtailment of crop by 50 per cent must inevitably effect present conditions in many ways. The cost of producing the curtailed crop would be materially increased, less labor would be required for the collection of the crop, trade generally would suffer, and Government revenues would be adversely affected; and to meet these difficulties the committee expressed certain opinions and made certain suggestions in the hope that the government would take favorable action thereon.

W. H. D. Totten Passes Away

The automotive industry will hear with sorrow of the death of W. H. D. Totten, which occurred at his home in Cincinnati, on January 20. Mr. Totten was a director of The United States Motor Truck Company, of Cincinnati and secretary of the Stewart Iron Works Company, of the same place.

MARKETS

Manufactured Rubber Goods

NEW YORK, MARCH 5, 1921

The larger rubber companies are busily engaged in refinancing for future operations, and getting their houses in order to go forward with production when the general resumption begins. Some of the manufacturers have taken losses in depreciation during the past nine months and it is a tribute to the industry as a whole that the producers who have been operating on a large scale have been able to weather the storm of adversity which set in during the summer of 1920.

Supplymen who have been recent visitors in rubber manufacturing centers report that there are more signs of activity to be noted in the numerous factories throughout the middle west, and operations are being steadily increased. The factories at Akron opened the new year with a good volume of business on their books, and they will have to begin again on quantity production in the near future if business shows any signs of improvement.

AUTOMOBILE TIRES

Operations are being continued on a curtailed basis, and the general expansion in manufacturing is yet to be seen. The minimum consumption for 1921 is estimated at 30,000,000 tires, allowing for the increased use of cord tires and the superior wearing qualities of good fabric tires. In 1917 a total of 27,000,000 tires was turned out by American manufacturers, and since that time automobile registrations have increased by more than 3,000,000 cars.

It is doubted in the trade that any action on tire prices will be made before summer, if then. It is pointed out that not until that time can manufacturers hope to work away from their stocks of high priced crude rubber and fabrics. The markets are all in such an unsettled condition that any sudden price-cutting war would work untold hardship on the entire industry. All of the influences at work in the market are now directed towards bringing about a condition of stability in the automobile tire market.

RUBBER FOOTWEAR

Curtailed production of rubber footwear is still the order of the day. Market prices on both crude rubber and cotton fabrics used in the manufacture of summer footwear are still vacillating too uncertainly to permit of any manufacturer entering the market to purchase supplies in sufficient quantities to provide for a sustained run of his factory. Many of the summer footwear factories are temporarily closed down, while others are working on a very much reduced production schedule. Manufacturers are basing their hope on a greatly expanded demand this season, when their product will be offered at lower prices.

DRUG SUNDRIES

Quiet trading is reported in the drug sundries market. Manufacturers report that their trade is buying on a hand to mouth basis, consuming demand having been held down this season owing to the comparatively mild winter. Some demand for rubberized sheeting is reported, but maufacturers are cutting down their production owing to the unsettled conditions in the raw products markets. Hot water bottles are meeting with a fair sale, with the cheaper grades in strongest demand.

MECHANICAL GOODS

Manufacturers of this line report the market as still being "dead". Practically no business is being done in rubber packing, and prices are showing a nominal tone throughout. The call for belting is greatly curtailed owing to the slackening of industrial and mining operations in all parts of the country. Marine specialities are also practically at a standstill in all quarters.

Railroads have placed some business with the factories on coupling hose, but the volume of such trading has not been up to expectations.

MISCELLANEOUS

Liquidation by manufacturers of men's and women's raincoats and other lines of rubberized clothing continues, special sales being featured by both manufacturers and retailers. The rapid decline in clothing prices has forced the manufacturers to unload at these sales, and some fairly heavy losses are being taken.

Manufacturers of rubber automobile specialities are looking for an improved demand for their products this season, and their salesmen are trying to stock dealers for the spring trade.

Cottons, Yarns and Fabrics

NEW YORK, MARCH 5, 1921

The change in administration will undoubtedly bring out a better sentiment in the raw cotton market, but nothing has as yet occurred to stop the downward trend of prices in all parts of the country.

Considerable selling pressure has been exerted from the South during the past two weeks, and prices have been carried down into the lowest ground reached since 1915. The selling by the South has been brought about partly, it is reported, by the action of the banks in calling in numerous loans. While this action was taken ostensibly to supply new funds to finance the new crop, in reality, it is asserted, the action is primarily a drastic measure to enforce crop curtailment this year.

The heavy offerings in the South have resulted in bringing out a series of sharp price breaks in primary spot markets, which for some time past have fluctuated independently of the New York market.

DOMESTIC PREMIUM COTTON

A fair demand for long staple cotton is reported in Southern markets, and more firmness is noted than on the ordinary staple. Strict middling, of 1¼ inch staple has been sold up to 25 cents per pound in the Memphis market, while prices on 1 3/16 inch staple show about a 6 cent differential. In the New Orleans market staple of 1 1/3 to 1 3/16 inches has brought up to 17 cents, but some sales have been made at less. Staple of 1¼ inches generally commands from 800 to 950 points above the average staple.

EGYPTIAN COTTON

Disorders marked by near-riots are reported from Alexandria as the result of the debacle in the market for the Egyptian long staple product. Continental buying has shown a sharp decrease during the past few weeks, and with American buyers practically out of the market, a steady decline in prices continues. Fully good Sakellaridis has offered at 40 cents per pound, on c.i.f. terms, landed either at Boston or New York, without attracting any buying interest, and good fair has offered at from 30 to 32 cents without commanding any bids.

ARIZONA COTTON

American-Egyptian cotton is not faring any better than the other varieties in the present depressed market. The year has seen a decline of more than 66 2/3 per cent in prices on the domestic long staple cotton, No. 2 grade offering at about 30 cents, f.o.b. New England mill centers, and No. 3 at about 39 cents, without any marked activity being noted. Arizona growers banded together in their cooperative marketing organization, are holding as much off the market as possible, and look for a price recovery when automobile tire manufacturing is resumed, and orders for the fabrics once again begin reaching the spinners.

TIRE FABRICS

Continued dullness in this branch of the market is noted, and sellers can give no confirmation of the rumored future business which the tire manufacturers are said to be placing. Demand is so dull, leading factors in the market report, that the spinners are keeping all open market prices withdrawn, and do not intend to resume quoting until the situation shows some signs of returning to normal. Spinners still have on hand fair-sized quantities of high priced long staple bought during 1920, but it is said that practically all of this is covered by the future contracts which the mills hold, with tire manufacturers.

HOSE AND BELTING FABRICS

Buyers are still practically out of the market for cotton ducks, insofar as quantity purchases are concerned. Manufacturers of mechanicals have curtailed production to a marked degree, and have no need for further stocks of ducks. Manufacturers of duck shoes are either closed down, or operating in a hand to mouth manner and the market lacks consistent buying support. Prices are nominally held, and it is quite possible that dealers' quoted figures could be materially shaded on a firm bid for a round lot of the fabric.

DRILLS, SHEETINGS AND OSNABURGS

Continued weakness is to be noted in this division of the market and prices are held on a nominal basis. Sheetings have been moving in a small way during the past fortnight, but the market lacks stability, and prices show fractional variances, according to the seller. Drills have shown strength at times, but the market has thus far failed to hold any of its gains, each slight advance being followed by a reaction. Demand for drills shows signs of easing off and the osnaburg situation has not shown any material change. Mills in New England and in

TIRE FABRICS

17¼-ounce Sea Island, combed, sq. yd.	Nominal		
17¼-ounce Egyptian, combed	—	@	—
17¼-ounce Egyptian, carded	—	@	—
17¼-ounce Peelers, carded	—	@	—
17¼-ounce Peelers, combed	—	@	—

(Note:—In the absence of important trading, all tire fabric prices are temporarily withdrawn by manufacturers.)

DUCKS

Belting (pound basis) lb.	.35	@	—
Hose (pound basis) lb.	.35	@	—
*Enameling lb.	.35	@	.40
Shoe Ducks lb.	.40	@	.42
Single filling yd.	.14	@	.18
Double filling yd.	.17	@	.20

*Price varies according to width.

DRILLS

37-inch 3.25-yard yd.	.09	@	.09½
37-inch 2.75-yard yd.	.11½	@	.12
37-inch 3.00-yard yd.	.10	@	—
37-inch 3.50-yard yd.	.08½	@	—
37-inch 3.95-yard yd.	.08¼	@	—

OSNABURGS

30-inch 7-ounce	.07½	@	.08
40-inch 7-ounce	.09¼	@	.09½

SHEETINGS

40-inch 2.35-yard yd.	Nominal		
40-inch 2.50-yard. yd.	.12	@	—
40-inch 2.85-yard yd.	—	@	—
40-inch 3.15-yard yd.	.11½	@	—
40-inch 3.60-yard yd.	.08½	@	.08¾
40-inch 3.75-yard yd.	.07½	@	—
40-inch 4.25-yard yd.	.08	@	.08½

Note—In view of the unsettled conditions prevailing in the market at the present time, the prices quoted above are more or less nominal, and are not guaranteed.

BURLAPS
(Carload Lots)

7 -ounce 40-inch	——	@	——
7½-ounce 40-inch	——	@	——
7½-ounce 45-inch	Nominal		
8 -ounce 40-inch	4.50	@	4.60
8½-ounce 40-inch	——	@	——
10 -ounce 36-inch	——	@	——
10 -ounce 40-inch	Nominal		
10 -ounce 45-inch	Nominal		
10½-ounce, 40-inch	5.50	@	——

Chemicals and Compounding Materials

NEW YORK, MARCH 5, 1921

More buying support has been in evidence the past fortnight and the markets are showing a little more strength on some lines. Most of this additional support is coming from the paint trade as manufacturers of this product are commencing work for the spring trade.

Price changes during the past fortnight were few, quotations changing erratically from day to day. Resale offerings in many lines have helped to depress quotations, while in other lines temporary shortages have forced prices up.

EXPORTS AND IMPORTS

Little can be said of the present export business. Foreign buyers find that they can cover their needs by purchases in European markets, and so are little disposed to brave the exchange barrier by purchasing here.

Imports of foreign chemicals and compounding materials continue unchecked. On some lines, foreign competition is proving too much for the American producers. The Fordney emergency tariff measure, on which so many of the domestic producers were basing their hopes, has died the natural death which even its proponents looked for. President Harding, however, has extended new hope to the industry by his inaugural message in which he promised early revision of existing tariff statutes.

LITHOPONE

A steady increase in lithopone demand is reported by leading producers, and the market is showing a steady undertone. Buyers who have been holding off in the hopes of a lower market are now beginning to place their business with producers. The latter state of demand is now more closely paralleling production than for some months past.

BARYTES

Some resale lots of barytes have appeared on the New York market, owners offering at $1.50 to $2.50 under producers' prices. This has naturally unsettled the market to some extent, but as the underprice offerings are generally cleaned up soon after the offers get around the market, the trade is looking for an early clearance of these distress holdings.

ZINC OXIDE

Sales of zinc oxide are picking up steadily, although producers report that the bulk of the new business is coming from other than the rubber industry. Some small lots of resale oxide which were recently put on the market here at ¼ cent per pound under the market. Producers show no inclination to reduce their selling prices, which hold quotably unchanged on all varieties, insofar as the leading factors in the market are concerned.

LITHARGE

Routine activity in this branch of the market is reported. The absence of buying by the rubber industry is keenly felt by producers, and is one of the main causes of the present slackness in the litharge market. There is an improved demand for litharge coming from the paint and allied trades, however. Producers are holding their prices firm on the quoted basis, and buyers who have refrained from placing business during the past few months in anticipation of a further downward revision of litharge prices are now coming into the market with their requirements.

DRY COLORS

Some weakness in the market for greens has been reported, although no actual changes in quoted prices have been made by leading sellers. Sienna browns are a little bit lower at 5 to 14 cents per pound, a drop of 1 cent on the inside price. It is quite probable that other grades of browns could be purchased at less than quoted prices were buyers to submit a firm bid for any quantity. Blues are tending lower, owing to heavy offerings of foreign colors. Domestic producers are not in a position to turn out blues and sell them in competition with German colors, and many are cutting down their output. Blacks hold unchanged, with considerable interest being shown in the bills pending before various state legislatures looking toward a prohibition of carbon gas black manufacturing. Reds are a little firmer, oxide red showing an advance of 2 cents per pound to 15½ to 19 cents, spot.

CRUDES

Most of the demand for benzol is centering on the 90 per cent grade which is quoted at 28 to 30 cents per gallon. Buying of the pure grade has been rather quiet, and prices are unchanged at 30 to 36 cents. Some export business is being done. Napthalene is freely offering, and the market is weak. Toluol is showing easiness on spot offerings, holders quoting the market on the basis of 30 to 36 cents per gallon under light demand. A better call for phenol is to be noted and the market is firming up in all quarters. Xylol continues quiet.

INTERMEDIATES

Acetanilid quiet and nominally held at 25 to 26 cents. Dull trading is reported from the aniline oil market with heavy offerings depressing the market to a considerable extent. Offerings at 21 cents are pretty well absorbed, and most holders are now demanding 22 cents. Anthracene is quiet, and held as quoted. Liberal offerings of betanapthol have contributed to a weaker feeling, but distress blocks are now cleaning up fairly well and prices hold at 38 to 45 cents.

Current Prices for Chemicals, Fillers, Colors, etc.

Acetone, carlots .....lb.	.13	@	—
Acetanilid, C. P., bbls. ..lb.	.28	@	.40
Acetone smaller lots .....lb.	.13½	@	.14
Acids, Acetic, 56 per cwt.cwt.	—	@	—
Carbolic, C. P. .....lb.	.09	@	.12
Muriatic, 20 deg. .cwt.	1.75	@	2.50
Muriatic, 22 deg. ..cwt.	2.50	@	3.25
Nitric, 40 deg.....cwt.	7.00	@	7.50
Nitric, 42 deg.....cwt.	7.50	@	8.00
Sulphuric, 60 deg. .car lots .....tons	13.00	@	15.00
Sulphuric, 60 deg. car boys	21.00	@	23.00
Tartaric, crystals ..lb.	.39	@	—
Albalith	.07	@	.07½
Aluminum Silicate	Nominal		
Aniline oil, bulk basis Contract	—	@	—
Imported	Nominal		
Domestic	.22	@	.26
Antimony— Oxide .....lb.	.07	@	.09
Sulphuret, red .....lb.	.25	@	.30
Sulhuret, golden ....lb.	.27	@	.30
Sulphuret, crimson .lb.	.40	@	—
Alcohol, denatured, 190 proof	—	@	—
Wood, 95 per cent	1.28	@	1.30
Ethyl, 190 proof	4.95	@	5.05
Aldehyde, Ammonia	Nominal		
Ammonia, powdered	.10	@	.15
Ammonium Carbonate, domestic .....lb.	.10	@	.15
Amyl Acetate .....gal.	3.45	@	3.90
Anthracene, 80 per cent ..	.85	@	.90
Anthroquinine, 95 per cent .	1.85	@	2.20
Asbestine	Nominal		
Asphaltum, Egyptian ....lb.	.20	@	.25
Domestic .....ton	.30	@	.40
Barium, dust .....lb.	.05½	@	—
Barytes, prime white imported .....ton	Nominal		
white, domestic ....ton	32.00	@	38.00
off-color, domestic ...lb.	20.00	@	28.10
Southern, f. o. b. mills .	25.00	@	27.00
Western, f. o. b. mills .	24.50	@	—
Beeswax	.16	@	.54
Benzidine Base .....lb.	.95	@	1.00
Benzol, 90 per cent	.28	@	.30
Benzol, pure bulk, 100	.30	@	.36
Blanc Fixe, dry, bbls ..lb.	.05	@	.05½
Burgundy Pitch, dom. ..lb.	.05	@	.06½
Foreign	.60	@	.65
Blacks, Drop .....lb.	.08	@	.20
Ivory .....lb.	.16	@	.45
Carbon, gas, cases ..lb.	.12	@	.30
Lampblack, R. M. .....lb.	.16	@	.45
Mineral blacks ....ton	30.00	@	40.00
Blues, Prussian .....ton	.60	@	.65
Soluble .....lb.	.65	@	.70
Ultramarine .....lb.	.12	@	.35
Browns, Umber, Turkey, burnt powdered .....lb.	.05	@	.06½
American, burnt ....lb.	.04¼	@	.05
Cadmium, sulphide, yellow lb.	1.40	@	1.45
Carbon, Disulphide, bulk .lb.	—	@	—
Bisulphide .....lb.	.08	@	.09
Casein, C. P. .....lb.	.45	@	.48
Castor Oil	.10½	@	.12
Caustic Soda, 76 per ct. cwt.	3.70	@	3.75
Chalk, precipated, extra light	.02¾	@	.03¼
heavy .....lb.	02¼	@	.02½
China clay, domestic....ton	10.00	@	12.00
imported .....ton	16.00	@	25.00
China Wood Oil, bbl. .....lb.	09½	@	.10½
F. o. b. Pacific Coast .	.08	@	.08¼
Chloroform, U. S. P.	.40	@	.43
Clay, Dixie.....ton	22.00	@	—
Blue Ridge.....ton	22.00	@	—
Coal Tar Pitch.....	—	@	—
Cottonseed Oil, crude, f. o. b. mills .....lb.	5.65	@	—
Prime summer yellow .	7.00	@	—
..... bbls.	—	@	—
Dimethylaniline .....lb.	.50	@	.60
Elateron	—	@	—
Formaldehyde, spot .....lb.	.17½	@	.18
Fullers Earth, powd., carload lots	24.50	@	—
Fossil flour .....lb.	—	@	—
Genasco Mineral Rubber....	—	@	—
Gilsonite .....ton	60.00	@	65.00
Glue, extra white.....lb	.35	@	.45
medium .....lb.	.28	@	.33
low grade	.20	@	.22
foot stock	.18	@	.20
brown foots	.18	@	.22
common bone	.16	@	.18
Glycerine, C. P. (drums) lb.	.19	@	.21
cans	.20	@	.22
Graphite, flake (bbl.)....lb.	.14	@	.20
powdered (bbl.) ....lb.	.04	@	.10
Green, chrome, R. M. ..lb.	.38	@	.60
Ground glass (fine).....lb.	.03½	@	.04
Hexamethylene .....lb.	1.25	@	1.30
Hexamethyenetramine ...lb.	1.00	@	1.10
Infusorial earth, powd'd..lb.	.02	@	.035
bolted .....lb.	.035	@	—
Iron ovide, red, reduced grades .....lb.	.13	@	.15
red, pure, bright....lb.	—	@	—
Kaolin	—	@	—
Lime, hydrated	—	@	—
Lead, red dry (casks) ...lb.	.09¼	@	.09½
sublimed .....lb.	—	@	—
White, basic carb. ...	.08	@	—
white, basic sulp. ...lb.	.07¼	@	.07½
Lime flour .....lb.	—	@	—
Litharge (casks) .....lb.	.08¾	@	.09
English .....lb.	—	@	—
Lithopone, domestic, bbls. lb	.07¼	@	—
in bags .....lb.	.07	@	—
M. R. X.	—	@	—
Magnesia, carbonate .....lb.	.15	@	.17
calcined light .....lb.	.60	@	.65
Magnesite, calcined, pwd.ton	50.00	@	65.00
Magnesia, Oxide, heavy.....	—	@	—
Light	—	@	—
Extra light	—	@	—
Napthalene .....lb.	.08	@	.10
Nitrobenzol	.12	@	.14
Naphtha, motor gasoline, (steel bbls.) .....gal.	.28	@	—
68 @ 70 degrees (steel bbls.) .....gal.	.37	@	—
70 @ 72 degrees (steel bbls.) .....gal.	.38	@	—
73 @ 76 degrees (steel bbls.) .....gal.	.40	@	—
machine (steel bls.) gal.	.49	@	—
Oil, corn, crude factory cwt.	8.26	@	—
corn, ref. (bbls.) .cwt.	10.76	@	—
linseed, (bbls.)	.72	@	.73
In carloads, spot	.63	@	.70
Tank cars	.66	@	.67
Oil palm, Lagos .....lb.	.07	@	—
Niger	.06½	@	—
Pine, yellow .....gal.	1.40	@	1.45
Distilled	1.45	@	1.50
Rapseed, refined ..gal.	1.05	@	—
Rapseed blown ...gal.	1.14	@	—
Rosin, first rectified gal.	.47½	@	—
Second, run	.53	@	—
Tar (commercial) .gal.	.36	@	—
Oleum Acid, 20 per ct. .ton	24.00	@	25.00
Orange mineral, Amer. ..lb.	.12¼	@	.14
Imported .....lb.	Nominal		
Ozokerite	Nominal		
Parapheylenediamine ....lb.	2.00	@	2.25
Petrolatum, bbls., amber .lb.	.06½	@	—
Pale yellow .....lb.	.05½	@	—
Parafin, refined, 118 @ 120 m. p.	—	@	—
127 @ 129 m. p.....	.09¾	@	.10¼
137 @ 140 m. p.	—	@	—
Phenol	.11½	@	.16
Pumis	.03	@	.08
Pine tar kiln .....bbl.	15.00	@	—
Pitch .....bbl.	14.50	@	—
Plaster of paris .....bbl.	4.25	@	5.00
Red Tuscan .....lb.	.22	@	.30
Red (American) ...lb.	.14	@	.16½
Indian (English).....	.14	@	.16½
Standard .....lb.	—	@	—
Rosin (common to good)— 280 lbs.	6.50	@	—
Rotten stone, powdered ..lb.	.02½	@	.04½
Rubber, substitute, black .lb.	—	@	—
White .....lb.	—	@	—
Brown .....lb.	—	@	—
Mineral, Hard Hydrocarbon .....ton	35.00	@	45.00
Rosin Oil, first rectified	.47½	@	—
Second rectified	.50	@	—
Third rectified	.53	@	—
Fourth rectified	.75	@	—
Soda ash, light 58 pct. cwt.	2.00	@	2.15
Sodium Nitrite 96 @ 98 pct.	.16	@	.17½
Solvent Naptha, crude, hvy.	.28	@	.34
Soya Bean Oil, bbls. ....lb.	.06	@	—
Sellers, tanks, f. o. b. Coast	.03⅞	@	—
Stearic Acid, single	.11	@	—
Shellac, fine orange ....lb.	.65	@	.66
Sulphur Chloride, drums...	.06½	@	.16
Shellac T. N. .....lb.	.50	@	.51
Bleached, ordinary ..lb.	.50	@	.55
Bleached, bonedry ..lb.	.60	@	.65
Silex (silicia).....ton	25.00	@	40.00
Soapstone, powdered ...ton	15.00	@	20.00
Starch, corn, powd. ..cwt.	2.68	@	3.16
Pearl	2.58	@	3.06
Jap potato, duty pd. lb.	.05	@	.05½
Sulphur, crude.....ton	—	@	—
100 pounds.....	—	@	—
Roll	2.00	@	2.60
Commercial superfine ..	2.00	@	2.90
Talc, American.....ton	18.00	@	20.00
French .....ton	30.00	@	36.00
Thiocarbanilid	—	@	—
Tolulol, pure, in drums, gal.	.30	@	.36
Commercial	.30	@	.32
Tripolite earth.....lb.	.01½	@	—
Turpentine, pure gum— Spirit .....gal.	.57	@	.59
Wood .....gal.	.51	@	.53
Venice, artificial.....gal.	.15	@	.18
True	2.85	@	3.00
Vermillion, English .....lb.	1.00	@	1.10
American	.25	@	.30
Vorite Rubber Substitute— "Soft"	.14	@	—
"A"	.14½	@	—
"C"	.14½	@	—
"Special"	.14½	@	—
Wax, beeswax, crude, yel. lb.	.21	@	.22
Refined	.26	@	.27
Bayberry	.25	@	.26
Ceresin, white .....lb.	.14	@	.15
Yellow	.13	@	.14
Whiting, commercial ...cwt.	1.30	@	1.35
Gilders Bolted	1.45	@	—
Paris, white Amer. cwt.	1.55	@	1.65
English, cliffstone .cwt	1.75	@	2.00
Quaker .....ton	13.00	@	15.00
Xylol (gal) pure	.42	@	.45
Commercial	.30	@	.35
Zinc Oxide, French process Red Seal	.10	@	.10½
Green Seal	.11	@	.11½
White Seal	.12¼	@	.12½
Leaded Grades— Commercial, lead free .	.08¾	@	.09¾
5 per ct. lead sulphate..	.08	@	.08½
10 per ct. lead sulphate	.07⅞	@	.08⅜
20 per ct. lead sulphate	.07¾	@	.08½
35 per ct. lead sulphate	.07⅝	@	.08⅛
Zinc Sulphate	.03¼	@	.03½

Crude Rubber

New York, March 6, 1921.

The only encouraging feature of the present market is the degree of firmness with which holders are keeping the market for future delivery rubber. Although prices on spot crude stock have been hammered down considerably by heavy offerings, particularly during the past week, the markets for future deliveries have held about unchanged.

Many future deliveries of crude rubber fell due on March 1, and there was a wild scramble to unload on this date. Many buyers who had been speculating in crude rubber decided that they had had enough by that time, and refused to warehouse their stocks, preferring to throw them on the market for what they could get. This action precipitated a wave of liquidation, which carried the entire list of prices down as much as a cent a day for one or two days early in the week. Much of the force selling was done by operators who came into the market during the 1920 boom, and who are now taking losses in order to liquidate their holdings.

Rubber brokers, and merchants' representatives who are returning from visits to the Western cities report that business is improving in the rubber towns of the middle West, and predict that April or May will witness a rejuvenation of the tire manufacturing industry. The mills are taking back their most efficient employes, they say, and are generally clearing things up for the expected heavy run later on in the year. These optimistic reports have been exceptionally cheering to the trade.

A little speculative buying has been noted from time to time during the fortnight, and some of the speculative element are showing more confidence. In addition, some lots of rubber are being picked up by buyers who regard the commodity a good investment at current prices. The resumption of speculation in the market

is significant in that such activity in seasons past has always come just before a strong upward move.

Reports from abroad indicate that the curtailment project undertaken some months ago by British and Dutch plantation operators is working out satisfactorily. The output is being radically reduced in many producing sections.

Latest revised quotations on crude rubber follow:

Ceylons			
Smoked sheets, ribbed, spot	.17	@	—
Smoked sheets ribbed March	.18½	@	.19
Smoked sheets ribbed April June	.21	@	.21¼
July Sept.	.23	@	—
Smoked sheet plain, spot	.15	@	—
First latex pale crepe	.18½	@	—
Amber crepe, No. 1	.16	@	—
Amber crepe, No. 2	.14	@	—
Amber crepe, No. 3	.12	@	—
Clean brown crepe	—	@	—
Light clean brown crepe	.15	@	.15½
Roll brown crepe	.12	@	.13
Grand Central crepe	.13	@	.13½
Africans			
Loando Niggers	.08	@	—
*No. 1 Benguella	.08	@	—
*No. 2 Benguella	.07	@	—
Laport Ball	.13	@	—
Paras			
Up-river fine	.17½	@	—
Up-river medium	.14	@	.14½
Up-river coarse	.13½	@	.14
Islands fine	.17½	@	—
*Maderia fine	.21	@	—
Cameta	.11	@	—
Islands coarse	.10½	@	.11
Centrals			
Corinto prime	.12	@	—
Esmerelda prime	.12	@	—
Miscellaneous			
Guayule wet	—	@	—
*Balata block Panama	.28	@	—
Balata sheets	.69	@	—
Palembang	.06¾	@	—
Bangermassin	.06¼	@	—
Columbian Block Balata	.46	@	—
Prime Pontianac	.06¼	@	—

*Nominal

Scrap Rubber

New York, March 5, 1921.

Stocks of scrap rubber are pressing for sale, and the market is quoted lower throughout the list. Members of the trade are feeling the necessity of reducing their holdings, but are meeting with little encouragement from the reclaiming trade.

Reclaimers are feeling out the market in a tentative way, and some small sized lots have been sold during the fortnight. It is noticeable, however, that these sales are still limited strictly to the actual requirements of the reclaimers, no advance buying of any kind being in evidence.

The crude market is being closely watched by the scrap rubber trade, and each upward swing in crude prices is the signal for rejoicing in the old rubber camp. While the scrap dealers maintain that their morale is still intact and that they are looking upon the future optimistically, they are feeling keenly the fact that optimism doesn't pay overhead.

	Cents	per	Pound
Solid Tires	1.50	@	2.00
Auto Tire Peelings	2.25	@	2.50
Truck Tires	1.00	@	1.75
Black Rubber	1.50	@	2.00
Boots and Shoes	2.25	@	2.50
Arctics, trimmed	2.00	@	3.00
Arctics, untrimmed	—	@	—
Tire—Automobile	.50	@	.75
Bicycles, pneumatic	.50	@	.75
Mixed Hose	.50	@	.75
Air Brake	1.25	@	1.50
Inner Tubes No. 1	6.50	@	7.00
Inner Tubes, No. 2	3.50	@	4.00
Red Tubes	2.50	@	4.00

Akron Stock Prices

(Special Akron Correspondence)

Announcement by the Miller Rubber Co. of the passing of quarterly dividend on preferred stock had a depressing effect on the rubber shares market in Akron at the beginning of March. Miller preferred sold down to 65 and the common issue of the same company dropped to 67 which is nearly 30 points under the high mark of a few weeks ago.

In a statement to stockholders, President Jacob Pfeiffer explained the action of the directors as follows:

"It was deemed advisable to charge off the entire shrinkage representing the difference between cost of raw materials and market values, also the reduction in value of merchandise in process and on hand based on lower material, labor and overhead charges, as well as settlements for the cancellation of rubber contracts.

"The shrinkage in invnetory on this basis aggregated $3,193,086, and payments made in settlement of contracts amounted to $215,951, or an aggregate amount of $3,409,037. The action resulted in a net loss for the year of $617,878.78. Net profit prior to the charging off of the items referred amounted to $2,791,158.94, practically all earned in the first six months of 1920.

"The loss for the year, together with the premium paid on the retirement of old preferred stock issues prior to the issuance of the present preferred and dividends declared during the year resulted in a deficit of $735,016.73, as of December 31, 1920.

"As regards contract liabilities, the company was obligated at December 31, 1920, on unfilled purchase contracts for raw materials, the aggregate purchase price of which is approximately $1,500,000 in excess of the market prices prevailing at that date, the portion of this which will result in final loss to the company being dependent on the basis of final adjustment or liquidation of these purchases.

"Based on the conservative valuation of the inventory the company had current assets in excess of $14,000,000, of which approximately $2,000,000 was cash, and its total current liabilities aggregated $8,676,000.

"Directors and the management believe that the action taken is for the best interest of your investment and of the business generally, and it was deemed necessary, in order to conserve the high credit position which it has been the policy of the company to maintain."

Firestone common also has been on the tobaggan during the recent weeks as a result of rumors that a cut in the dividend rate is probable.

Goodyear stock after dropping on announcement of refinancing plans has shown a rather firm tone, common holding around 13 and preferred around 32.

Goodrich also is down several points and several other rubber shares have exhibited a tendency to ease off.

Following are the quotations in Akron on March 1:

	Bid	Asked
Amer. R. & T. com.	43	65
do pfd	...	90
Amazon Rubber	...	30
Firestone T. & R. Com.	70	75
do 6 pct. pfd.	78	80
do 7 pct. pfd.	76	79
General T. & R. com.	180	250
do 7 pct. pfd.	80	90
B. F. Goodrich com.	35½	37
do 7 pct. pfd.	78	79
do 5 yr. 7 pct. notes	90	90½
Goodyear T. & R. com.	13½	14
do 7 pct. pfd.	31½	32
India Rubber com.	100	130
do 8 pct. pfd.	...	80
Mason T. & R. com.	18	20
do 7 pct. pfd.	66	67
Marathon T. & R. com.	3½	4
Miller Rubber com	...	67
do 8 pct. pfd.	...	65
Mohawk Rubber	145	155
Portage Rubber com	22	24
do 7 pct. pfd.	...	39
Republic Rubber com	1	1⅛
do 7 pct. pfd.	...	20
do 8 pct.	9	10
Rubber Products	...	100
Star Rubber com	...	100
do 8 pct. pfd.	...	100
Swinehart T. & R. com	...	40
do 7 pct. pfd.	...	70
Phoenix Rubber com	...	20
do pfd.	...	90
Standard Tire com	...	125
do pfd.	...	90

New York Stock Prices

Following are the New York Stock Exchange quotations on the various rubber stocks listed for March 2:

	Bid	Asked
Ajax Rubber Corp.	28	29
Fisk Rubber Co.	14¼	14½
B. F. Goodrich Co.	37	37⅜
Kelly-Springfield Tire	38¾	39
Keystone T. & R.	15⅝	15¾
Lee Rubber & Tire	20⅜	20⅞
U. S. Rubber	67	67¼
do 1st. pfd	102¼	102½

American Rubber Patents

ISSUED FEBRUARY 8, 1920

1,367,676—To Frederic L. Wanklyn, Montreal, Quebec, Canada. Vehicle-tire.

1,367,824—To Shavuksha D. Master, Bombay, India. Cushion-tire.

1,367,856—To Rolla B. Bostwick, Duquesne, Pa. Vehicle-tire.

1,367,994—To Edward Sterns, St. Louis, Mo., assignor to Surety Tire & Rubber Co., Wilmington, Del. Vehicle-tire.

1,367,995—To Edward Sterns, St. Louis, Mo., assignor to Surety Tire & Rubber Co., Wilmington, Del. Vehicle-tire.

1,368,063—To Casper Stanley Sights, La Harpe, Ill. Inner tube for tires.

1,368,198—To George W. Sell, Portland, Ore. Resilient automobile tire.

1,368,200—To George W. Sell, Portland, Ore. Resilient tire for automobile trucks.

ISSUED FEBRUARY 15, 1921

1,368,268—To Archibald B. Legnard, Waukegan, Ill. Mold for retreading automobile tires.

1,368,304—To Alva C. Terrell, Kansas City, Mo. Tire.

1,368,393—To Richard T. Griffiths, Olaf Anderson and John O. Goodwin, Akron, Ohio, assignors to The Miller Rubber Co., Akron, Ohio. Tire-building machine.

1,368,478—To Roscoe A. Brooks, Chicago, Ill., assignor to Western Rubber Mold Co. Adjustable section and retread-mold for pneumatic tires.

1,368,493—To John Egan, Memphis, Tenn. Tire-rim.

1,368,511—To Kenneth F. Lees, New Haven, Conn. Combined tire test-gage and valve.

1,368,512—To Kenneth F. Lees, New Haven, Conn. Tire test-gage and valve.

1,368,513—To Kenneth F. Lees, New Haven, Conn. Combined tire valve and gage.

1,368,527—To Frederick Paulsen, Kansas City, Mo. Pneumatic-tire core.

1,368,631—To Andrew Huetter, Dayton, Ohio. Expansible core for vehicle-tires.

1,368,641—To Thomas Midgley, Springfield, Mass., assignor to The Fisk Rubber Co., Chicopee Falls, Mass. Tire-mold.

1,368,679—To Alexander Adamson, Akron, Ohio. Vulcanizer.

1,368,682—To John Alm and James Hughes, Naugatuck, Conn., assignors to The Goodyear's Metallis Rubber Shoe Co. Rubber boot method of manufacturing the same under differential of pressures.

1,368,929—To Walter H. Hermann, Lancaster, Ohio, assignor to The Herman Tire Building Machine Co., Columbus, Ohio. Tire-building machine (vertical adjustment).

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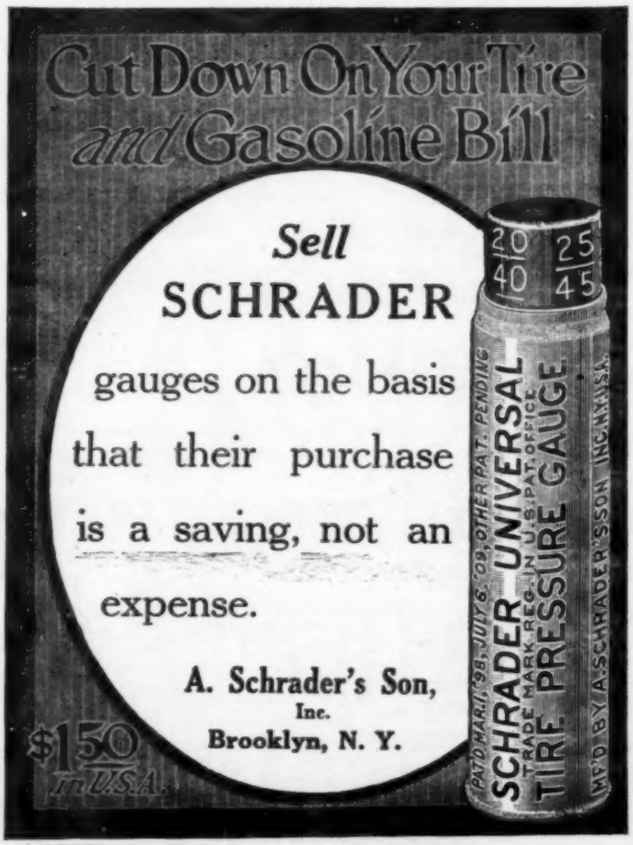
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